DEC 7 1929

Medical Library

This Issue Exceeds 100,000 Copies

THE JOURNAL

OF THE

American Medical Association

Subscription, $5.00—After Jan. 1, 1930—$7.00 PUBLISHED WEEKLY Single Copies, 20 Cents

VOLUME 93, No. 23 535 North Dearborn Street, CHICAGO, ILL. DECEMBER 7, 1929

CONTENTS AND SUBJECT INDEX

So-Called Fatal Anaphylaxis in Man, with Especial Reference to the Diagnosis and Treatment of Clinical Allergies. R. W. Lamson, M.D., Los Angeles.....1775

Membranous Conjunctivitis with Loss of Eyeballs: Report of Cases. C. W. Rutherford, M.D., Iowa City 1779
Discussed by Dr. Swab.

Specificity of Soluble Toxins Produced by Hemolytic Streptococci. George F. Dick, M.D., and Gladys Henry Dick, M.D., Chicago..1784

Acute Phosphorus Poisoning from the Ingestion of Roach Paste: Fatal Case in Child. Stafford McLean, M.D.; Aildred MacDonald, M.D., and Ruth C. Sullivan, Ph.D., New York.....1789

Treatment of Syphilis in Its Relation to Prevention. Thomas Parran, Jr., M.D., Washington, D. C...1793
Discussed by Drs. Snow, Strohm, Jones, Pomeroy, Abt, Fricks, Hanley, Stuht and Parran.

Causes of Changes in the Circulation of the Feet. J. H. Bacon, M.D., Peoria, Ill. 1797
Discussed by Drs. Horton and Bacon.

Tuberculosis of Insidious Onset and of Acute Onset: Necessity of Different Diagnostic Criteria. F. M. Pottenger, M.D., Monrovia, Calif. 1801
Discussed by Drs. Weems, Peers, Emerson, Ison, Pierce, Nelson and Pottenger.

Chronic Inflammatory Disease of the Biliary Tract: Factors Influencing the Choice of Treatment, with Review of End-Results in Five Hundred and Eleven Cases. R. H. McDonald, M.B., Cleveland..1805

COUNCIL ON PHARMACY AND CHEMISTRY 1809

EDITORIALS

The Extent of Illness in the United States 1810

The Reaction of Morning Urine.1811

Diet, Serum Proteins and Edema.1811

Causation of Pulmonary Abscess.1812

CURRENT COMMENT

Anemia in Bright's Disease....1812

The Quarterly Cumulative Index Medicus 1813

Intestinal Pneumatosis.....1813

(Subject Index on next page)

THE PRESIDENT'S MESSAGE 1814

ASSOCIATION NEWS 1815

Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed

Copyright, 1929, by the American Medical Association. NEXT ANNUAL SESSION, DETROIT, MICH., JUNE 23-27, 1930

The teaching of 12,500 cases

AS RECORDED IN YOUNG'S UROLOGY

THIS wealth of clinical material and its authorship at once stamp this work as an authority. In the first chapter appears the original work of Dr. Young and his assistants on the Physiology and Anatomy of Micturition. The chapter on Obstructive Uropathy covers all obstructions of the urinary tract from the meatus to the kidney, giving very fully the instructions for the preliminary medical treatment which has reduced the mortality of prostatic operations from 20 per cent. to less than 1 per cent. There are three chapters on Urogenital Infection, copiously illustrated. There are 49 pages on Urolithiasis.

Every phase of Benign Hypertrophy is covered. The subject of neoplasms is presented more exhaustively than ever before. The chapters on Ulcerative Lesions of the Urogenital Tract, on Diagnostic Significance of Special Symptoms, and on the Examination of the Urologic Patient are of great practical value to the practicing physician to whom the patient comes for relief. The section on Operations comprises eight chapters and is most inclusive.

By HUGH H. YOUNG and DAVID M. DAVIS. With the collaboration of FRANKLIN P. JOHNSON. Two octavo volumes, totaling 1432 pages, with 1010 illustrations, 20 in colors, by Wm. P. Didusch. Per set: Cloth, $25.00 net

See SAUNDERS ANNOUNCEMENT on Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

A. M. A. Scientific Exhibit, Detroit.....1815
Abortion, diffuse peritonitis after.....ab-1852
Acne vulgaris, sugar metabolism in.....ab-1838
Acriflavine base in venereal prophylaxis.C-1828
Alcohol, denatured, dangers from.....1830
Alkaline tide of morning urine.....E-1811
Alopecia, ultraviolet rays for.....1831
Amniotin.....ab-1836
Anaphylaxis, fatal.....*1775
Anemia, pernicious, insulin in.....ab-1844
hemolytic, with hemosiderinuria.....ab-1846
in Bright's disease.....E-1812
Angina Pectoris, pancreas extracts in...ab-1845
Antimony poisoning from enamel jugs...1821
Aorta, relation to esophagoscopy.....ab-1838
Appendectomy, typhoid-like fever after.ab-1852
Appendicitis, fatal pneumonia after....ab-1852
Ascaris, reinfection.....ab-1835
infection vs. rainy season.....ab-1835
Association News.....1815
Asthma, fatal anaphylaxis.....*1775
Tucker nostrum.....1829
vaccine therapy.....ab-1838
Bacillus colon vs. colostrum.....ab-1848
proteus infection epidemic.....ab-1847
Bacteremia from Escherichia.....ab-1840
Biliary Tract, chronic inflammatory disease.*1805
Bladder, lymphogranulomatosis.....ab-1851
surgery, air embolism during.....ab-1843
unusual infective condition.....ab-1843
Blood circulation of feet.....*1797
coagulation and sedimentation.....ab-1849
occult, Gregersen test.....ab-1841
pressure, high, prognosis.....ab-1837
viscosity in infections.....ab-1845
Bone, skeletal abnormalities.....ab-1851
Book Notices.....1832
Books Received.....**Adv. page 32**
Brain, hemorrhage.....ab-1836
local reactions in diathermy of.....ab-1849
tumor, hemorrhage from.....ab-1836
Bronchitis, infectious.....ab-1838
Bronchopneumonia, bacteriology.....ab-1842
peculiar complication.....ab-1851
Bubo, specific vaccine for.....ab-1852
Bureau of Investigation.....1828
Bursa, omental, hernias.....ab-1845
Cancer and tuberculosis.....ab-1838
hospital in Vienna.....1824
in 2 year old child.....ab-1852
miliary, diagnosis.....ab-1850
Capillary stasis, brain hemorrhage from.ab-1836
Carbon monoxide inhalation vs. fetus.....1829
Cerebrospinal Fluid pressure.....ab-1848
Chancroid, specific vaccine for.....ab-1852
Chiropractors can't use electrotherapy.....1817
Colds, curative effect of vaccines.....ab-1836
College teachers, income.....1819
Colon, spastic, and mucous colopathy..ab-1835
Colostrum, anticolibacillary action.....ab-1848
Committee on Cost of Medical Care.....E-1810
Commonwealth Fund division of public health.....1818
Conjunctivitis, membranous.....*1779
Convulsive states.....ab-1836
Correspondence.....1828
Council on Pharmacy and Chemistry.....1809
Deaths.....1826
Dermatitis venenata due to ephedrine...ab-1838
Diabetes coma, then and now.....ab-1840
insulin for, during diphtheria.....1829
Diet, serum proteins and edema.....E-1811
Diphtheria, inoculating infant against....1831
insulin for diabetes during.....1829
membranous conjunctivitis.....*1779
Edema, diet, and serum proteins.....E-1811
Embolism, air, with bladder surgery..ab-1843
infected, causes lung abscess.....E-1812
pulmonary, fatal pneumonia after....ab-1852
Empyema, treatment.....ab-1843
Encephalitis in pregnancy.....ab-1839
postvaccinal.....ab-1851
Ephedrine, dermatitis venenata due to.ab-1838
Epilepsy, convulsive states.....ab-1836
Epiphyses, necroses.....ab-1852
Erysipelas, soluble toxins.....*1784
Esophagoscopy, aorta relation to.....ab-1838
Evidence, hospital records as.....Ml-1834
Eyeballs, loss of.....*1779
Fetus vs. carbon monoxide inhalation.....1829
Fever syndrome in infants operated on...1822
Fibula graft.....ab-1844
Flatulence, intestinal.....ab-1837
Foot, circulation changes of.....*1797
Foreign Letters.....1820
Genitals, lymphogranulomatosis.....ab-1851
Government Services.....1819
Hand abscess, gravity drainage.....C-1828
Hay-fever, fatal anaphylaxis.....*1775
Health, teaching the laws of.....1821
Hearing acuity vs. vibrations.....ab-1838
Heart disorders, congenital juvenile.....1823
disease, congenital, in twins.....ab-1842
disease, rheumatic, leukocyte count in..ab-1842
muscle infarct, electrocardiogram in..ab-1846
Helminthiasis vs. rainy season.....ab-1835
Hemoptysis, nontuberculous.....ab-1845
Hemorrhage, menotoxic.....ab-1851
Hernias of omental bursa.....ab-1845
Hoover, President's Message.....1814
Hospital staff, osteopaths excluded.....1815
Industrial effects on human bodies.....1825
Infant, milk allergy in.....ab-1842
pallor and fever syndrome in.....1822
sudden and unexpected deaths.....1822
Infantilism, treatment.....1831
Infections, blood viscosity in.....ab-1845
Influenza, secondary stage.....ab-1848
Insulin for diabetes in diphtheria.....1829
in hyperemesis gravidarum.....ab-1846
in pernicious anemia.....ab-1844
Insurance, social, and rheumatism.....1825
Intestines, allergic disease.....ab-1835
multiple infiltration.....ab-1851
pneumatosis.....1813
Jaundice of the new-born.....1821
Joints, tuberculosis, prognosis.....ab-1850
Kidney disease, diagnosis.....ab-1840
hypernephroma.....ab-1845
parenchyma in pyelitis.....ab-1848
Labor, blood reaction in.....ab-1851
Lactation, hypogalactia.....ab-1846
Lecene, Dr., death.....1822
Leukorrhea, diet treatment.....ab-1849
Leukosarcoma and myelosarcoma.....ab-1839
Liver injury from phosphorus.....*1789
Lungs, abscess, causation.....E-1812
disease, effect on blood.....ab-1837
disease, thoracic wall movement in....ab-1847
foreign body, removal.....ab-1841
irrigation method.....ab-1844
Lymphogranulomatosis.....ab-1851
Maduromycosis.....ab-1838
Malaria parasites, development.....ab-1835
Malpractice, debt, claim based on as....Ml-1834
bone splinter left in nose.....Ml-1834
limitation of action, accrual of cause..Ml-1834
Marriages.....1826
Meat, effect of cold storage.....1821
Medical Education, Registration.....1831
Medical Service for the middleman.....1817
Medicolegal.....1834
Meetings, Coming Meetings.....1834
Menstruation, vicarious.....ab-1851
Mercury poisoning from thermometer...ab-1847
Methenamine effect on blood.....ab-1849
Milk, cow's, protein, acute sensitization.ab-1842
irradiated, for family use.....ab-1847
irradiated, for rickets.....ab-1850
Mineral water, value.....1829
Myelosarcoma and leukosarcoma.....ab-1839
Nephritis, anemia in.....E-1812
Nepoty, M., death of.....1823
Neurosyphilis, treatment.....ab-1837, ab-1839
Nevus, quinine and urea for.....1829
New and Nonofficial Remedies.....1809
News.....1815
Omentum bursa hernias.....ab-1845
Ophthalmologists, loan collection for.....1818
Otorhinolaryngology, Congress of.....1822
Ovary hormone, amniotin.....ab-1836
Pancreas extracts, in angina pectoris...ab-1845
Parathyroid tumor vs. skeletal anomalies.ab-1851
Paternity, serologic determination.....1825
Pediatrics, Congress of.....1821, 1823
Pellagra in maize-eating natives.....ab-1842
Pericarditis, adhesive, chronic.....ab-1835
Peritonitis, diffuse, postabortal.....ab-1852
Phosphorus poisoning from roach paste....*1789
Pituitary, anterior lobe function.....ab-1844
Placenta tissue vs. carbon monoxide.....1829
Pleura disease, thoracic wall movement..ab-1847
Pneumatosis, intestinal.....E-1813
Pneumonia in childhood.....ab-1842
oxygen subcutaneously.....ab-1842
Pollen extract, anaphylaxis.....*1775
Population, child, decrease of, London....1821
Pregnancy, blood reaction in.....ab-1851
encephalitis in.....ab-1839
syphilis in.....*1793
Pregnancy, tuberculosis in.....ab-1851
vomiting of, insulin in.....ab-1846
Professional Secrecy after doctor's death..1824
Protargol in venereal prophylaxis.....C-1828
Puerperium, encephalitis in.....ab-1839
Pyelitis, kidney parenchyma in.....ab-1848
Quarterly Cumulative Index Medicus....E-1813
Queries and Minor Notes.....1829
Quinine-urea treatment of a mole.....1829
Radio Program.....1815
Rectum, cancer.....ab-1838
Rheumatism, tonsil bacteriology.....ab-1843
acute, blood acid-base equilibrium....ab-1842
relation to social insurance.....1825
tonsillectomy in.....ab-1842
Rhinitis, acute, organism.....ab-1840
Rickets.....1823
irradiated milk for.....ab-1847, ab-1850
irradiated snail lipids for.....ab-1844
Roach paste poisoning.....*1789
Scarlet Fever, blood pressure in.....ab-1848
specificity of soluble toxins.....*1784
Schilder's Disease.....ab-1843
School, open-air.....1824
Semilunar Bone, Kienboch's disease.....ab-1852
Serum, fatal anaphylaxis.....*1775
protein, diet and edema.....E-1811
Sickness, extent in U. S.....E-1810
Smallpox vaccination of infants.....1831
vaccinia variola flocculation test.....1820
Snail lipids, irradiated.....ab-1844
Socialism, British, cost of.....1820
Society Proceedings.....1834
Solution, decinormal.....1829
Spermatic Cord, surgeon sentenced for ligating.....1824
Spine, sacralization.....ab-1852
Scheuermann's disease.....ab-1852
Spleen vs. tumor growth.....ab-1849
State Board Examinations.....1831
Stomatology, Congress of.....1821
Streptococci, hemolytic, soluble toxins...*1784
Strophanthin, effect on blood.....ab-1849
Sun-bathing in trains.....1821
Sweat, bactericidal properties.....ab-1838
Syphilis, congenital, preventing.....*1793
in pulmonary tuberculosis.....ab-1841
Meinicke clarification test.....ab-1845
treatment, Treparsol.....1830
treatment vs. prevention.....*1793
Thermometer, broken, poisoning from...ab-1847
Thorax wall, movements.....ab-1847
Thyroid vs. uterus fibroid.....ab-1838
Tibia sarcoma, resection.....ab-1844
Tissue, regeneration.....ab-1852
human, cultivation.....ab-1852
Tonics and Sedatives.....**Adv. page 26**
Tonsillectomy for rheumatism.....ab-1842
Tonsils, bacteriology in rheumatism....ab-1843
Toxins, soluble, specificity.....*1784
Treparsol.....1830
Trichuris, infestations.....ab-1835
Tuberculosis and cancer.....ab-1838
dissemination.....ab-1848
immunization, Langer's method.....ab-1847
in pregnancy.....ab-1851
insidious, vs. acute onset.....*1801
source in nurslings.....ab-1847
Tuberculosis, Pulmonary, acidosis in....ab-1837
diet for.....ab-1847
in gravidas.....ab-1851
multiple intercosal neurectomy for....ab-1836
phrenico-exairesis in.....ab-1837
pneumothorax for, "other side" in....ab-1847
syphilis complicates.....ab-1841
Tucker asthma nostrum.....1829
Tuffier, Dr., death.....1822
Tumors, growth vs. spleen.....ab-1849
Registry.....1818
Twins, cardiac disease in.....ab-1842
Typhoid-like fever after appendectomy.ab-1852
at Clinton, Iowa.....1816
Uncinariasis reinfection.....ab-1835
vs. rainy season.....ab-1835
Urine, hemosiderinuria perpetua.....ab-1846
morning, reaction of.....E-1811
Uterus fibroids vs. thyroid.....ab-1838
discission of cervix.....ab-1850
Vagina, cancer in 2 year old.....ab-1852
Veins stasis, brain hemorrhage from....ab-1836
Venereal prophylaxis, acriflavine base in.C-1828
Viosterol vs. irradiated milk.....ab-1850
Water supply, proteus bacillus in.....ab-1847
Wills, testamentary capacity, criteria of.Ml-1834
Workmen's Compensation Acts, septicemia following injury.....Ml-1834
Wrist, dislocation and fracture.....ab-1852
Zonite declared misbranded.....1830

ALL MAKES OF VISITING LISTS

Send for circular

CHICAGO MEDICAL BOOK CO.
Congress and Honore Sts. Chicago

Special Low Car Insurance Rates to A.M.A. Members

Save $10 to $35 *per Year*
CHICAGO LLOYDS

Free estimate on your own car, write
310 So. Michigan Ave.
CHICAGO ILLINOIS

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 93, No. 23 CHICAGO, ILLINOIS DECEMBER 7, 1929

SO-CALLED FATAL ANAPHYLAXIS IN MAN

WITH ESPECIAL REFERENCE TO THE DIAGNOSIS AND TREATMENT OF CLINICAL ALLERGIES

R. W. LAMSON, PH.D., M.D.
LOS ANGELES

In a previous communication [1] an attempt was made to collect and summarize all reported cases of sudden death in which anaphylaxis-like phenomena were evident. From these data certain conclusions were reached which will bear repetition:

1. The exact mechanism involved in these cases is not easy to define.
2. There is some evidence that the serum injected played no specific part in the death of the patient.
3. In a few of the observed cases the amounts injected were so minute that it is difficult to believe that the nature of the injected substance could have had much to do with the fatal result.
4. One is inclined to assume individual physiologic peculiarities on the part of the patient as the determining factor.
5. A negative skin test may not be an absolute index of the reaction capacity of the patient.

Since 1924 additional fatalities have, of course, occurred. Reports of some of these cases have been published and the data concerning others have been furnished me to include in this report. It is not my purpose to compile all the recent cases but rather to study these from the standpoint of the conclusions quoted and to bring out additional points. The past five years of experience in this phase of medicine might be expected to throw additional light on the "exact mechanism involved," and a method of preventing the fatal reactions.

The following cases, not heretofore reported, will be considered in this discussion:

REPORT OF CASES

CASE 1.—*History.*—A. M., a white man, aged 34, weighing 185 pounds (84 Kg.), had for several years been suffering from perennial symptoms of hay-fever, sneezing, lacrimation and injection of the conjunctivae. Proximity to hay seemed to aggravate the symptoms. His physician noted that the patient occasionally had attacks of dyspnea which appeared to be true bronchial asthma and not the so-called cardiac asthma. A history of attacks of urticaria due to fruits, especially strawberries, was obtained. There was no history of eczema, epilepsy or migraine. He was not known to have any renal, circulatory or other important pathologic disturbance. Previous injection of foreign protein had been limited to typhoid vaccine in the Canadian army. Mild nausea and headache had followed the last injection.

Details of a physical examination were not furnished by his physician.

The family history was negative for allergies in collateral and vertical lineage.

Present Illness.—In June, 1928, the patient consulted his physician because of the nasal symptoms mentioned. He was tested by the scratch or dermal method with pollen extracts furnished by a biologic supply house. The reactions were negative to several tree pollens, and to plantain, canary, foxtail and velvet grass. Black walnut, and Johnson, June, orchard, redtop, rye and timothy grasses, produced a wheal about 18 mm. in diameter. Bermuda grass (*Cynodon dactylon*) developed a wheal as large as 30 mm. in diameter. These results were submitted to the laboratory that made the extracts and treatment with bermuda grass was recommended. The physician was furnished various dilutions of the extract, and directions for giving the treatments. The first injection consisted of 0.05 cc. of the 1:10,000 dilution. All injections were given subcutaneously in the region of the deltoid.

Between June 27 and July 9 the patient received seven injections of this dilution, the final one being 0.7 cc. The eighth injection was given July 10 and consisted of 0.1 cc. of 1:1,000 dilution. From that date to July 18, six injections of this dilution were given. The last of these was 0.4 cc. July 19, he received 0.1 cc. of the 1:100 dilution. The next morning he told his physician that he had been somewhat nervous after the treatment and that he was unable to sleep as well as usual. This was the first sign or symptom in connection with the treatments and was not anaphylaxis-like in nature. He was advised against a treatment, July 20, but insisted on taking one as he was going away for a week or more and wished to prolong the relief he had obtained by the previous injections. The physician wisely reduced the dose to 0.05 cc. of the 1:100 extract. This was one-half the dose given twenty-four hours before. Immediately after receiving the treatment the patient walked to a chair and sat down, as was his custom. His face suddenly (within a minute or two) flushed, and athetoid movements of the hands, arms and legs followed. The patient then fell forward. Marked dyspnea was evident and was of an inspiratory type, with a peculiar crowing expiratory phase, accompanied by considerable frothy bronchial secretion. Two cubic centimeters (30 minims) of epinephrine was given and artificial respiration was instituted. The rectal sphincter was forcibly dilated in an attempt to stimulate the patient. The physician noted that the sphincter was somewhat relaxed, although there was no incontinence of feces or of urine during the course of the shock. The fire department nearby furnished an oxygen inhalator. Respiration ceased from three to five minutes after the injection, but cardiac action could be heard at least ten minutes after the onset of the symptoms. No definite urticaria-like reaction was noted at the site of the injection of the extract.

The physician's diagnosis naturally was "death due to anaphylactic shock." A representative of the coronor's office performed a necropsy and he concurred in this diagnosis. It was noted that the lungs were distended and did not collapse when the thoracic cavity was opened.

Summary.—A pollen sensitive patient with perennial hay-fever, who occasionally had mild attacks of bronchial asthma, received in a period of twenty-two days thirteen injections of increasing concentration of bermuda grass pollen extract. These did not produce symptoms but they did afford marked

1. Lamson, R. W.: Sudden Death Associated with the Injection of Foreign Substances, J. A. M. A. 82: 1091 (April 5) 1924.

relief from hay-fever. The fourteenth injection, given on the twenty-third day of the series, probably produced some degree of nervousness but no striking systemic manifestation. The fifteenth dose, given on the twenty-fourth day of the series, was one-half that which had produced the mild symptoms and of a total volume of 0.05 cc. Death resulted in from three to five minutes, apparently as the result of an asthmatic syndrome. Drastic and orthodox methods of stimulation instituted at once did not exert a demonstrable effect on the fatal course. In general it is not advisable to permit a biologic laboratory to prescribe treatment, but that feature seems irrelevant in this case. In fact, I see no way that the unfortunate accident could have been anticipated or avoided, or the rapid course influenced once the signs and symptoms appeared. If this is true anaphylaxis, it seems logical to ask why the patient was not desensitized or rendered antianaphylactic by the frequently repeated and gradually increasing dosage of antigen which in turn had benefited him clinically.

CASE 2.—*History.*—X., a white man, aged 34, had suffered from asthma of moderate severity for many years, and this condition was complicated by pulmonary tuberculosis. The latter diagnosis had been confirmed several years previously by the finding of a positive sputum. Mild hay-fever had been present for the past few months. He also gave a history of chronic gastro-intestinal dysfunction, possibly allergic in nature.

The physical observations were typical of those in bronchial asthma, and during periods of freedom from asthma slight tuberculous activity was evident in the left upper lobe. No cardiorenal abnormalities were detected.

The family history was positive for asthma.

Present Illness.—During a period of three or four weeks in May, 1927, the patient was tested intradermally with various pollen extracts in a 1:50 dilution, and with several dried pollens by the ophthalmic method. The pollen reactions were classed as negative or very slightly positive, except the ophthalmic test to giant ragweed, which was said to be definitely positive. Intracutaneous tests with 1:500 extracts of epidermals gave a distinct positive reaction to cat hair and a negative or slight reaction to dog and horse hair and to sheep wool, and also to chicken and duck feathers. Orris root in the same concentration was negative. Intradermal tests with 1:500 extracts of beans, beets, cabbage, carrots, cauliflower, celery, cucumber, eggs, lettuce, peas, sweet and white potato, tomato and wheat were negative or questionable. A slight reaction was obtained to milk and a distinct one to asparagus.

On the last day of the tests the patient was having slight hay-fever and practically no asthma. Intradermal tests with 1:500 extracts were negative for barley, corn, oat, rice and rye but were positive for buckwheat. About ten minutes was required to introduce the tests. Two or three minutes after the last one was made, the patient complained of lacrimation and a burning sensation in his chest. A wheal about 1 cm. in diameter, possessing several pseudopods, was noted at the site of the buckwheat test. Five-tenths cubic centimeter (8 minims) of epinephrine was given subcutaneously at the site of the reaction, and 1 cc. (16 minims) in the opposite arm. Cyanosis and respiratory difficulty (strangling) became extreme and death ensued within five minutes after the onset of symptoms. Artificial respiration and intravenous and intracardiac administration of epinephrine failed to resuscitate the patient. During the shock there was complete absence of erythema multiforme, urticaria, angioneurotic edema or cutaneous itching. A necropsy was not secured. The only abnormality detected post mortem was blood in the external auditory canals. The local wheal formation disappeared immediately after death. This fatality occurred in the practice of an allergist of considerable experience in a neighboring state, who made the following comment:

"As the roentgenograms showed no cardiac abnormality and the symptoms were not those of spontaneous pneumothorax, the case resolves itself into one of embolus or anaphylactic shock. There was no reason to suspect the former. The small amount of material (0.01 cc.) injected in each instance and the gentleness of administration practically precludes accidental intravenous administration. In spite of the lack of necropsy confirmation, the case suggests anaphylactic shock due to extreme hypersensitiveness to one of the proteins used, probably buckwheat, which gave the only positive test. The patient had had urticaria in the past, but no definite food sensitivity was known. The lesson suggested by this case is the danger of the intradermal method even in comparatively weak dilutions without preliminary cutaneous tests."

CASE 3.—This fatality occurred previous to 1924, but the data were not furnished me before publication of the previous article. A youth, aged 15, white, apparently became nauseated while driving an automobile. He asked his companion to take the wheel and he then climbed out on the running board. He either fainted or lost his balance, as he fell to the gravel road. He was conscious when his companion reached him, and shortly after drove the automobile to a physician's office. His injuries apparently consisted of a badly lacerated knee. He seemed normal in every other respect. As he had suffered a "street injury," he was given 1,500 units of antitetanic serum into the lumbar muscles. He was advised not to walk because of the injured leg, so the physician carried him to the door, which was closed. In order to open it the physician told the patient that it would be necessary to stand him on his feet. He replied, "I feel all right." He was therefore placed in an upright position, the door was opened and the patient exclaimed, "What's happening?" It was noted that his skin was "mottled." He fell into the physician's arms and died almost instantly. There was no dyspnea, cyanosis or pallor. Heart action ceased immediately. Two hours of effort with the lungmotor and oxygen, and the intracardiac injection of epinephrine, failed to resuscitate the patient. He had been subject to attacks of asthma since early childhood, probably due to a sensitivity to horse dandruff. These facts might lead one to classify this case as "fatal anaphylaxis," but it differs from the previous cases in many important details. One must not be misled by the fact that the fatality occurred in an asthmatic person, sensitive to horse dandruff, after the injection of antitetanic (horse) serum. In view of the insufficient data, it may be impossible to classify this case.

COMMENT

In addition to case 2, fatalities associated with skin testing have been reported by Baagøe [2] (egg white), Cooke [3] (glue) and Lamson [1] (ovomucoid). Very severe reactions which threaten to become fatalities are seen not uncommonly by those engaged in diagnosing or treating allergic patients.

It seems fair to state that scarlet fever antitoxin has not been used as frequently as has diphtheria antitoxin in the past few years; yet a relatively large number of severe or fatal reactions have been attributed to it. Lowens [4] referred briefly to a fatal case and Toomey [5] reported a series of cases treated with this antitoxin. The latter mentioned the severe reactions in many of the patients and the fatalities in a few. These cases are not quite typical of those under discussion, and it is questionable whether they should be considered of the anaphylactic type. Toomey apparently agrees with this point of view.

In order to discuss the mechanisms that may be concerned in these cases, we must speak and understand a common language. The "confusion of tongues" in immunology is still a very real issue. Each authority who attempts clarification rejects one or more terms and substitutes a new one, or a new meaning for one in common use, and the attempt results in more obscurity. The reader is referred to discussions of immunologic nomenclature by such authorities as Coca, Doerr, Kolmer, Zinsser and others. While it may seem too academic to discuss terminology here, there are a

2. Baagøe, K. H.: Death from Anaphylaxis, Ugesk. f. Læger **90**: 550 (June 14) 1928.
3. Cooke, R. A.: Studies in Specific Hypersensitiveness: iii, J. Immunol. **7**: 119 (March) 1922.
4. Lowens, Harry: Anaphylactic Shock, Queries and Minor Notes, J. A. M. A. **89**: 1625 (Nov. 5) 1927.
5. Toomey, J. A., and Dolch, E. G.: Scarlet Fever: Use of Antitoxins, Am. J. Dis. Child. **36**: 1173 (Dec.) 1928.

few points, especially the disadvantages of using certain of these terms too loosely, that should be considered. Many of us believe that "allergy" as applied to tuberculosis refers to quite a different mechanism from that in asthma, hay-fever, eczema and urticaria; yet the term has come into such wide use for these conditions that it would be difficult to displace it. It is used in this report to include the four clinical conditions just mentioned. I have previously [1] outlined my point of view concerning the use of the term anaphylaxis but wish to furnish additional support for this view. It will be remembered that the phenomenon to which the term was first applied occurs when a guinea-pig receives a second injection of serum, or certain other foreign protein, about three weeks after the first injection. The term does not refer primarily to the clinical syndrome but rather to the fundamental difference between the reaction capacity of the sensitized and the normal animal. Dyspnea, which is primarily due to an inability to empty the lungs, impressed the early as well as the subsequent worker with the similarity between this and bronchial asthma in man. Many have failed, however, to keep in mind the possible difference between man and the experimental animal.

Before the term anaphylaxis is applied to bronchial asthma, another protocol might be considered. A guinea-pig that has never received an injection of foreign protein may be used for this experiment. The correct dose of histamine solution, or any one of a number of substances,[6] may be injected and the clinical picture which follows will be practically identical with that seen in the anaphylactic animal. Shall the histamine shock be called anaphylaxis because of the fact that the signs presented are similar to those in the pig sensitive to horse serum? If so, then I agree that the paroxysmal dyspnea observed in bronchial asthma is a manifestation of anaphylaxis, and the fatal reactions under discussion are of the same nature. If no more searching analysis is necessary, then it seems logical to classify all patients with a temperature of 102 F. as having typhoid, and every one who has a paroxysm of sneezing, even though this resulted from tickling the nasal mucous membrane with a cotton swab, or from inhaling pepper, as having hay-fever. While this strict clinical use of the term anaphylaxis, based on a similarity between only one or a few signs in the two guinea-pigs and in man seems absurd, it might be correct if made so by "common usage." For the present it would seem best to designate the reactions in man and in the guinea-pig treated with histamine as "anaphylaxis-like." Ultimately it may be shown that the distinction between these is but a trivial one. Perhaps the most important objection to terming these cases "fatal anaphylaxis" is that a certain element of neglect or error is implied by such a diagnosis. A comprehensive definition of anaphylaxis usually contains some reference to the opposite condition; namely, antianaphylaxis. The latter state can be brought about quite readily in certain sensitized animals. Some schedule of increasing dosage, based on this phenomenon in animals, is usually recommended as a means of desensitizing the patient when foreign protein is to be administered. When a case of "fatal anaphylaxis" occurs, one is apt to feel that the desensitization was not properly carried out. In several of the cases previously [1] summarized, attempts were made to bring about this antianaphylactic state, but without success. Blankenhorn [7] and Tuft [8] emphasize the ineffectiveness of the Besredka desensitization technic in their cases. The latter [8] says: "A careful review of the literature has failed to find any one who has clearly proven the value of these methods of prevention." Attention should again be called to patient 1 in this report, who received a long series of "desensitizing" injections without reaction until the last dose, and obtained definite clinical relief. The previous injections failed to protect him against a minute dose of the injected material. These observations are offered as further evidence that the cases under consideration are not instances of true anaphylaxis and that the nature of the injected substance had little relation to the fatal result.

Clinical observations also tend to support this thesis. It has been pointed out [1] that "certain very evident nonspecific factors, such as breathing of cold air, nervous or physical strain or irritation of the respiratory passages by sulphur dioxide, may bring on a respiratory reaction similar to those previously described." Duke in a series of articles has emphasized the importance of physical and nonspecific chemical irritants in the allergic patient. Several cases that I have observed are of interest in this connection. A student nurse who has severe bronchial asthma gave an interesting history of a nonspecific factor which certainly could not be an antigen-antibody reaction. She stated that on numerous occasions she has been sitting quietly in a chair entirely free from symptoms, and with her mind deeply occupied. An associate would come in and greet the patient by a friendly slap on the back. If this came as a surprise to her, it would invariably precipitate a severe paroxysm of wheezing which often persisted for hours. The same amount of trauma when she was not frightened by it would have no evident effect. Bénard and Joltrain [9] describe a patient in whom the first paroxysm of asthma occurred at the age of 18 years after a severe fright. Later an experimental violent emotion induced hemoclastic shock followed by a paroxysm of asthma. It would appear that fright is capable of precipitating the asthmatic syndrome and this points to a possible explanation for these fatal reactions without implying any specific effect on the part of the injected substance. It seems probable that in the fatal cases the paroxysmal dyspnea differs only in degree from the dyspnea in the two instances cited.

Two other patients, under observation at the same time, are of interest. One of these patients invariably would begin to wheeze if he drank cold water. If he was having only mild wheezing, hot water often relieved him; several other patients have stated that relief from mild asthma could be obtained by hot drinks. The second patient, also a man, could produce asthma at will by drinking hot water or any carbonated drink. Surely these phenomena should not be classed under anaphylaxis according to the original meaning of the term, although they do demonstrate that paroxysmal dyspnea may result from a wide variety of stimulants. It is suggested that a reflex mechanism is more important than antigen-antibody reactions.

A final objection to pigeonholing these cases under a supposedly well understood diagnosis is one that is not

6. Hanzlik and his associates at Stanford University School of Medicine have in the past few years made an extensive study of what they term anaphylactoid reactions in animals. This reaction was produced by a wide variety of substances, many of which were inorganic compounds.

7. Blankenhorn, M. A.: Anaphylactic Shock and Failure of Desensitization After Administration of Pneumococcus Type 1 Serum, J. A. M. A. **85:** 325 (Aug. 1) 1925.

8. Tuft, L.: Fatalities Following the Reinjection of Foreign Serum, with a Report of an Unusual Case, Am. J. M. Sc. **175:** 325 (March) 1928.

9. Bénard, R., and Joltrain, E.: Emotional Asthma, Bull. et mém. Soc. méd. d. Hôp. de Paris **50:** 1155 (July 2) 1926; abstr. J. A. M. A. **87:** 977 (Sept. 18) 1926.

limited to so-called fatal anaphylaxis but applies generally throughout all branches of medicine. It has been pointed out in substance by many workers that too strict grouping of patients into clinical types tends to prevent further accurate observation, creates logic-tight compartments into which no other diagnosis is admitted, stifles research and, last but most important of all, may lead to incorrect treatment. It need only be mentioned that for many years these unfortunate accidents were pigeonholed as status lymphaticus, and in spite of the scholarly discussions of this condition by Marine[10] and Garland,[11] will undoubtedly be so catalogued by certain observers for years to come.

The use of "allergens"—pollens, epidermals, foods—is becoming quite general among those not limiting their practice to this specialty. The general practitioner, internist, pediatrician and rhinologist, and in some cases even the surgeon, may occasionally carry out these tests or treatments. It has been impossible to arrive at a basis for estimating the relative frequency of sudden death resulting from these procedures. Enough has been brought out to show that it may occur with sufficient frequency not to be classed as a clinical rarity. It is of vital importance that all should appreciate the not too remote danger associated with these procedures to the end that the patient and also the physician may have the maximum protection. I have emphasized the possible dangers in this field because the danger incident to the injection of foreign protein (serum) has been stressed in many papers on this subject. The Council on Pharmacy and Chemistry will doubtless make an important pronouncement on the danger of serum therapy in a forthcoming report.[12] It is most unfortunate that the few accidents that have occurred have not added to our knowledge of how to anticipate the reaction or interrupt it once it is initiated.

A recent editorial comment[13] on another type of medical accident seems pertinent. After emphasizing the difference in the attitude of the public toward daily accidents, on the one hand, and an occasional accident, such as the explosion of an anesthetic, on the other, the editor asks, "Is it not high time that a study in the prevention of all types of explosions be made, so that the advantages of anesthesia may be fully preserved for suffering humanity and the preventable explosions absolutely controlled?" The changing of a few words would make this comment applicable to the problems presented by the accidents under discussion. It would express more forcefully than I could the final suggestion I wish to offer.

It is admitted that many difficulties would be encountered in a study of so-called fatal anaphylaxis, but they do not appear to be insurmountable. Much has been accomplished in the study of other diseases by the establishment of a central committee, such as the various committees for the study of malignant disease, to which all pertinent cases may be reported. This would stimulate more careful observation and recording of the data concerning each case and should result in a higher percentage of postmortem examinations; in practically none of the fatal cases has there been a satisfactory necropsy. Reporting to a committee will eliminate the undesirable notoriety the physician fears will come to him if he publishes reports of his own cases; many contend that at present but few of these fatalities have been reported. If the data concerning all cases were available, the cases could be segregated into those possibly anaphylaxis-like and those in which injection of the particular substance was definitely not related to the cause of death. A study of the former group of cases would doubtless suggest means of further investigation and control of the underlying mechanism.

The public is educated to the fact that occasionally a minor or an elective surgical operation will result in the death of the patient. Such a fatality has little newspaper value, but a fatality resulting from the injection of serum, pollen or similar substance is given front page notoriety and furnishes additional ammunition for the cultist who is vigorously campaigning against vaccination and other prophylactic measures.

CONCLUSIONS

1. Several cases of sudden death associated with the injection of foreign protein have occurred in the past five years. Certain of these resulted from testing or treating "allergic" patients with substances other than serum. The quantity of material injected was extremely minute in several of these cases. A majority of these patients were asthmatic.

2. The conclusions indicated in a previous article apply with equal force to the fatalities that have occurred in the interim. The mechanism is still not understood.

3. The further evidence here presented indicates that these cases should not, for the present at least, be classed as anaphylactic, even though paroxysmal dyspnea is a prominent terminal sign. It seems difficult, if not impossible, to induce a state of antianaphylaxis.

4. In many of these patients severe asthma may be precipitated by evident nonspecific factors, such as fright, physical stimuli, especially heat and cold, and irritating gases. Nonspecific factors may cause the fatal reactions.

5. It is high time that a study of these accidents be made, so that the advantages of serum, pollen and similar treatments may be fully preserved for suffering humanity and the preventable accidents absolutely controlled.

1930 Wilshire Boulevard.

10. Marine, David: Status Lymphaticus, Arch. Path. **5**: 661 (April) 1928.
11. Garland, J.: Some Sidelights on the Thymus Vogue, New England J. Med. **200**: 59 (Jan. 10) 1929.
12. Annual Meeting of the Council on Pharmacy and Chemistry, J. A. M. A. **92**: 1430 (April 27) 1929.
13. An Anesthetic Accident, editorial, J. A. M. A. **92**: 476 (Feb. 9) 1929.

Activities of the National Tuberculosis Association.—The National Tuberculosis Association continues to be the real leader of tuberculosis thought and action in the world. During the war and since, it has helped many of the countries of Europe in the formulation of plans and procedures in the fight against tuberculosis. It was called on to help the United States government in formulating estimates of the extent of tuberculosis among ex-service men following the war, and plans for the handling of these patients. It has organized state associations in every state, which have become a component part of the national association through representation on its board of directors. It has done much valuable research, studying remedies claimed to be useful in the treatment of tuberculosis, working out the best treatment and the best plans for a treatment in tuberculosis and in the diagnosis, particularly the x-ray diagnosis in adults and children. It is now conducting perhaps the greatest piece of cooperative research that has ever been organized—the laboratories of thirteen universities in the United States and Canada, two commercial houses and the United States Laboratory of Hygiene. The work of the universities is made possible by grants from the National Tuberculosis Association.—McBrayer, L. B.: Résumé of Tuberculosis Work in North Carolina in 1929, *South. M. J.*, November, 1929.

MEMBRANOUS CONJUNCTIVITIS WITH LOSS OF EYEBALLS

REPORT OF CASES *

C. W. RUTHERFORD, M.D.
IOWA CITY

Descriptions of membranous conjunctivitis have appeared regularly in textbooks on ophthalmology from that of Wharton Jones [1] in 1855 to the latest editions of living authors. The terms pseudomembranous, plastic, diphtheritic and nondiphtheritic or croupous, and superficial and deep conjunctivitis are established in ophthalmic literature.

Mackenzie [2] mentioned a lymphatic exudation on the conjunctiva and the conditions [3] in which such an exudation might occur. He quoted Béclard, whose references are the earliest I have found: "Membranous or plastic inflammation is less frequent there. However, one observes it frequently in the air passages, where it constitutes croup, . . . and sometimes in the eyes." (L'inflammation couenneuse ou plastique y est moins fréquente. Cependent on l'observe fréquemment dans les voies aériennes où elle constitute le croup, . . . et même quelquefois aux yeux.[4]) In his Additions to Bichat he [5] states that the conjunctiva, when inflamed in consequence of exposure to the vapor or hydrochloric acid, presents a covering of false membrane.

Mackenzie [6] conceded that these conditions afforded examples of a pseudomembranous or diphtheritic conjunctivitis but declared that in no other instance is an effusion of coagulable lymph on the surface of the conjunctiva, forming a layer which can be peeled off, part of any mere conjunctivitis. Such an exudation he had observed as an occasional attendant on that severe form of general inflammation of the eyeball and orbital tissues to which the name of ophthalmitis is applied. In some of these cases, but not in all, he said that this layer, if stripped off, is formed again and again. He [7] had earlier made a distinction between ophthalmitis and conjunctivitis.

Mackenzie [8] evidently considered endophthalmitis and panophthalmitis only as other names for ophthalmitis. He observed [3] that ophthalmitis frequently followed measles, smallpox, scarlatina and typhus, and that it could be produced by slight injuries in some particular states of the constitution, or by the circulation of purulent matter (septic emboli) in the blood. Accordingly, he classified an ophthalmitis with conjunctival exudation as traumatic or phlebitic in origin. His description [9] of the physical signs, course and pathology of ophthalmitis is suggestive of panophthalmitis, or of orbital cellulitis with ocular abscess beginning by ulceration in the cornea most probably.

Von Graefe [10] is generally recognized as having been the first to adopt the expression diphtheritic conjunctivitis. Nettleship [11] said that the earliest account of this disease was given by Dr. Jaeger [12] of Vienna. When Hutchinson [13] reported a case diagnosed as diphtheritic ophthalmia, Mackenzie,[8] who had already protested [6] against this, remonstrated in the following language: "If, then, the diphtheritic exudation is only one of the symptoms of the disease in question—if it is the least weighty of them all—and it does not constantly, but only occasionally, occur—it ought not to be adopted as the ground on which to establish a new nosological distinction." Parsons [14] objected to the employment of the word membranous in nosology but advised that it be used pending a laboratory examination; yet he described diphtheritic and membranous conjunctivitis together!

Textbooks usually, not always, describe and discuss diphtheritic conjunctivitis and membranous conjunctivitis separately. Weeks [15] described the two distinctively: Klebs-Loeffler conjunctivitis is characterized by intense swelling of the upper lid due to venous stasis and a plastic exudation into its tissues, for from two to five days, after which the lid becomes flabby; the pseudomembrane forms early and extends from the palpebral to the ocular conjunctiva; it is persistent and, when detached, often forms a cast of the fornix. Membranous conjunctivitis affects children chiefly; but adults are not exempt; the lids are red and swollen; the conjunctivae are thickened; the secretion is mucopurulent; the false membrane can be removed readily from the mucous membrane, which bleeds only moderately, but it reforms promptly and repeatedly for an indefinite period of from three weeks to five months.

Samelson, quoted by Tweedy,[16] differentiated two types: (1) a thorough solid infiltration of the parenchyma of the mucous membrane, and (2) an easily removable recurrent exudation on the surface of the membrane. Hogg,[17] after examining many membranes microscopically, considered them to be from two diseases. He said that the form which sometimes becomes recurrent is not especially communicable. Writers emphasize that each type of disease may simulate the other in a most perplexing manner. Nettleship [11] was unable to distinguish one from the other by the severity of the local process; he regarded them as essentially one disease and believed that the term diphtheritic applied to both. Hirschberg [18] insisted that a distinction be made. Bader, quoted by Mason,[19] regarded the membranous type as a distinct disease. The underlying principles seem to apply to all cases in a general sense, and no effort will be made here to separate them into diphtheritic and nondiphtheritic classes.

* Footnotes 2, 4, 5, 12 and 43 were not consulted by the author himself.

* From the Department of Ophthalmology, State University of Iowa Hospital and College of Medicine.

* Read before the Section on Ophthalmology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

1. Jones, T. W.: Ophthalmic Medicine and Surgery, American ed. 2, Philadelphia, Blanchard & Lea, 1856, p. 90. (From London ed. 2, 1855, p. 61.)
2. Mackenzie, William: Practical Treatise on Diseases of the Eye, ed. 3, 1840, p. 513.
3. Mackenzie, William: Phlegmonous and Phlebitic Ophthalmitis, London M. Gaz., new series **1 (35)**: 593 (Feb. 7) 1845; Practical Treatise on Diseases of the Eye, American ed. 4, Philadelphia, Blanchard and Lea, 1855, p. 566. (From London ed. 4, 1854, p. 585.)
4. Béclard: Élémens d'anatomie générale, Paris, 1827, p. 243.
5. Béclard: Additions à l'anatomie générale, Paris, 1821, p. 233.
6. Mackenzie, William: Diphtheritic Conjunctivitis: A Symptom of Ophthalmitis, Brit. M. J. **1**: 25-27 (Jan. 9) 1858.
7. Mackenzie, William: Practical Treatise on Diseases of the Eye, American ed. 2, Boston, Carter, Hendee & Co., 1833, p. 264.
8. Mackenzie, William: So-Called Diphtheritic Ophthalmia, R. L. O. H. Reports **2**: 175 (Jan.) 1860.
9. Mackenzie (footnote 3; footnote 6).
10. Von Graefe, Albrecht: Ueber die diphtheritische Conjunctivitis, Arch. f. Ophth., part 1, **1**: 168-250, 1854.
11. Nettleship, E.: Diphtheritic Ophthalmia, St. Thomas's Hosp. Rep., new series **10**: 21, 1879; Brit. M. J. **2**: 327 (Aug. 30) 1879.
12. Jaeger: Dissertatio de Conjunctivitide Membranacea, Vienna, 1835. Eduard von Jaeger was born in 1818; his father did not write his dissertation on this subject (Am. Encycl. Ophth. **9**: 6700, 1916).
13. Hutchinson, J.: Diphtheritic Ophthalmia, R. L. O. H. Reports **2**: 130 (Oct.) 1859.
14. Parsons, J. H.: Diseases of the Eye, ed. 4, New York, Macmillan Company, 1923, pp. 156-159.
15. Weeks, J. E.: Diseases of the Eye, London, Henry Kimpton, 1911, pp. 238-242.
16. Tweedy, J.: On the Treatment of Diphtheritic Ophthalmia by Local Applications of Solutions of Quinine, Lancet **1**: 125 (Jan. 24), 282 (Feb. 21) 1880.
17. Hogg, J.: Diphtheritic Conjunctivitis, Lancet **1**: 371 (March 15) 1873.
18. Hirschberg, J.: Diphtheritic Ophthalmia, Brit. M. J. **2**: 535 (Oct. 4) 1879.
19. Mason, F.: Long Persistent Diphtheritic Conjunctivitis, R. L. O. H. Reports **7**: 164, 1871.

Stellwag [20] believed that a catarrhal, a blenorrheal, or even a trachomatous secretion might cause a membranous conjunctivitis. Von Arlt [21] reasoned that the rarity of membrane formation excluded ordinary pus discharges as causative factors. Wells [22] said that membranous ophthalmia occurred occasionally in the course of a purulent ophthalmia, while Streatfield [23] said it was a stage of that disease. Meyer [24] considered membranous conjunctivitis a croupous form of ordinary conjunctivitis. Swanzy [25] described the false membrane as only a symptom of the inflammatory reaction. De Schweinitz [26] regarded the formation of a membrane as probably an intercurrent condition in several varieties of conjunctivitis. It is evident that membranous exudation does not depend on an inflammation confined to the conjunctiva.

The exudation is generally ascribed to infections by Klebs-Loeffler bacilli, streptococci, staphylococci, pneumococci, gonococci or Koch-Weeks bacilli, and by any of a long list of very different pathogenic organisms.[27] The clinical appearances afford little or no information about the identity of the active organisms; they may be responsible independently or in combination (Swanzy). Jessop [28] reported thirteen cases with loss of one eyeball. The Klebs-Loeffler bacillus was found in eight cases, streptococci in two and staphylococci in three. Stephenson [29] reported forty-three cases, with corneal sequelae in eight. The diphtheria organism was present in all cases—pure in 14 per cent, and mixed, mainly with streptococci and staphylococci, in 86 per cent. It may be inferred that the presence of a false membrane is not due solely to the local effects of organisms.

Some additional factor is evidently essential to the production of a membrane. Parsons [30] considered that the nature of the mixed infection, combined with variability in the reaction of the patient's tissues, determines whether the membrane will be superficial or deeply necrosing. He thought the condition of the tissues of great importance, and the diphtheria bacillus only conditionally contagious for the conjunctiva. Nettleship [11] believed that a conjunctiva already diseased, or convalescing from disease, was predisposed to infection with membrane formation. Thus, a membrane might form in cases of chronic granular, catarrhal or gonorrheal conjunctivitis, and with other local conditions. He also believed that such diseases as measles, whooping cough, bronchopneumonia, severe diarrhea and variola, by lowering resistance, predisposed the conjunctiva to inflammation with exudation.

Tissue resistance may be lowered by an epithelial injury that would ordinarily be insignificant or even imperceptible (Swanzy). Noyes [31] mentioned a primary loss of epithelium in one spot. Standish [32] spoke of a similar loss on the bulbar conjunctiva; the disease may appear in and be limited to that. These abrasions might have been sites of inoculation. Morrow, discussing Baker's report,[33] referred to a case of smallpox in which inoculation occurred on the bulbar conjunctiva.

Bronner [34] described a case of diphtheritic conjunctivitis in which the disease was limited to the right eye, and that for three days only. While he was examining the patient's eye, some mucopurulent fluid spurted into his own eye; his eye was immediately cleansed and there was no reaction. Von Arlt related how a colleague acquired an accidental conjunctival inoculation while treating a case of pharyngeal diphtheria, and, although prophylactic measures were used immediately, the consequent infection, which developed in two days, led to total destruction of the cornea and considerable atrophy of the conjunctiva; the disease was limited to the one eye. One wonders whether the latter could have been injured in the cleansing process or whether some conjunctival injury, irritation or infection was already present in that eye.

Collins and Mayou,[35] Swanzy and others recognized that the membranes might form from irritants as well as from infections. Vail [36] reported a case in which, at the time of his examination, several organisms were obtained on cultures, but that was not until after silver nitrate in 2 and 5 per cent solutions had been employed for several months. There is reasonable doubt that any of the organisms identified by culture were primarily responsible for the membrane; one preauricular gland was swollen.

The diphtheria bacillus has been a frequent offender, although it seldom causes loss of eyeballs unless present with secondary infections. The original organism can exist alone for a time, but others may be added to it, and finally the original one may disappear. Standish [37] had cases in which he identified Klebs-Loeffler bacilli in early stages of the disease, but after the brawny swelling was fully established he was unable to obtain growths of this organism. Moore [38] said that it cannot be demonstrated after the first few days.

Streptococci may be found in some cases if not in all (Moore); they alone can produce the disease;[39] the most persistent cases are due to them (Weeks) and frequently end with loss of the eyeball through ulceration of the cornea.[30] Pritchard [40] reported nine or ten cases; when the process was not checked, the membrane spread over the globe and destroyed the sight. One such case occurred in connection with scarlet fever; the four remaining children of the family had pharyngeal diphtheria and two of them died. Hutchinson [13] reported a case that followed an attack of scarlet fever; both globes collapsed from rapid destruction of the corneas.

Baker reported the eye complications that occurred during an epidemic of smallpox in which streptococci were present in every case examined. Of twenty-three patients, practically all had corneal lesions; eight eyes were enucleated or became atrophied; panophthalmitis

20. Stellwag von Carion, C.: Diseases of the Eye, American edition, New York, William Wood & Co., 1868, p. 300.
21. Von Arlt, F. R.: Diseases of the Eye, American edition, Philadelphia, P. Blakiston's Son & Co., 1885, pp. 68-69.
22. Wells, Solberg: Diseases of the Eye, American ed. 1, Philadelphia, Henry C. Lea, 1869, p. 45.
23. Streatfield, J. F.: Diphtheritic Conjunctivitis, Lancet **2**: 10 (July 5) 1873.
24. Meyer, E.: Diseases of the Eye, American edition, Philadelphia, P. Blakiston's Son & Co., 1887, p. 79.
25. Swanzy, H.: Diseases of the Eye, revised by L. Werner, ed. 13, Philadelphia, P. Blakiston's Son & Co., 1925, pp. 67-70.
26. De Schweinitz, G. E.: Diseases of the Eye, ed. 10, Philadelphia, W. B. Saunders Company, 1924, pp. 227-229.
27. Roemer, P.: Textbook of Ophthalmology, translated by M. L. Foster, New York, Rebman Company, 1913, pp. 57-62.
28. Jessop, W. H. H.: On Membranous Conjunctivitis, Tr. Ophth. Soc. U. Kingdom **22**: 41-59, 1902.
29. Stephenson, S.: Diphtheria of the Conjunctiva, Tr. Ophth. Soc. U. Kingdom **22**: 59-92, 1902.
30. Parsons, J. H.: Pathology of the Eye, New York, G. P. Putnam's Sons **1**: 39-58, 1904.
31. Noyes, H. D.: Diseases of the Eye, New York, William Wood & Co., 1890, pp. 311-313.
32. Standish, Miles: Diphtheritic Conjunctivitis, Tr. Am. Ophth. Soc. **7**: 44, 1897.
33. Baker, A. R.: Eye Complications of Smallpox, Tr. Sect. Ophth., A. M. A., 1903, p. 182.
34. Bronner, A.: A Peculiar Case of Membranous Conjunctivitis, Tr. Ophth. Soc. U. Kingdom **13**: 26, 1893.
35. Collins, E. T., and Mayou, M. S.: Pathology and Bacteriology of the Eye, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1925, p. 519.
36. Vail, D. T., Jr.: Argyrosis of the Tarsal Conjunctiva in an Infant, Am. J. Ophth. **11**: 782 (Oct.) 1928.
37. Standish, Miles: Diphtheritic Conjunctivitis, Tr. Am. Ophth. Soc. **7**: 694, 1896.
38. Moore, R. F.: Medical Ophthalmology, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1925, p. 259.
39. Fuchs, E.: Textbook of Ophthalmology, translated by A. Duane, ed. 8, Philadelphia, J. B. Lippincott Company, 1924, pp. 478-480.
40. Pritchard, A.: Diphtheritic Conjunctivitis, Brit. M. J. **1**: 981 (Nov. 28) 1857.

developed in five, and iridocyclitis in two. The comparison is of interest and will be referred to again.

Collins and Mayou stated that nasopharyngeal diphtheria may or may not be present in cases in which the disease has appeared in the eye. Of twenty-two cases reported by MacCallan and Rasheed Bey,[41] respiratory diphtheria was present in but one. Nettleship[42] reported a case in which the disease appeared primarily in the left eye; it next invaded the right eye, and then the nose and throat. He[11] noted that conjunctival exudates occurred in some cases of mixed and successive infections such as develop in the incubation stage of scarlet fever, or with diphtheritic ulceration of the throat after scarlet fever.

The conjunctival infection may appear secondarily to nasopharyngeal diphtheria or other infectious diseases. The secretions can be carried from the nostrils or elsewhere to the eyes by the fingers or by cloths. Von Hoor[43] reported a case with loss of the corneas in an infant who had a streptococcic abscess of the navel; during gestation the mother had had repeated streptococcic infections. Howe[44] reported the case of a young girl who had diphtheritic conjunctivitis, and a vaginitis which was clinically and bacteriologically diphtheritic. The conjunctivitis persisted for more than a year and a half, and both eyes were lost from corneal involvement. Ball and Toomey[45] recorded a case of vaccinia of the eyelids in which infection was thought to have been transported by the fingers. Morax[46] associated the severe type of streptococcic conjunctivitis sometimes with a purulent coryza. Hutchinson's patient had a nasal discharge. It seems probable that the hands might have been convenient transports in these and other cases, regardless of what organisms were responsible.

Knapp[47] accounted for the conjunctival infection by transplantation, or by extension from the nasal mucosa by way of the nasolacrimal duct. Weeks and Parsons[14] refer to the latter. Morton[48] reported a case in which three successive lacrimal abscesses occurred on the same side in three years; the third abscess was followed by a membranous conjunctivitis with sloughing of the cornea. The eyeball was eviscerated five years later on account of panophthalmitis. Granulations continued to form on the palpebral conjunctiva for three years more. Noyes' case showed chronic granulations.

A diagnosis cannot be made from appearances. Berry[49] stated that membranes are formed in many cases of ophthalmia neonatorum, and that this must be distinguished from diphtheritic conjunctivitis. Patton and Gifford[50] described agricultural conjunctivitis; it resembled diphtheritic conjunctivitis in the swelling and tumefaction of the lids, involvement of the regional lymph glands, skin lesions and adherent exudates on the conjunctivae. In five of their six patients they found a large gram-positive anaerobic bacillus. Three gave a history of slight trauma to the conjunctivae or lids. None were exposed to or had diphtheria.

MacCallan and Rasheed Bey reported twenty-two cases. Five of the patients lost one eye and six lost both eyes. An impetiginous eruption was commonly present on the eyelids, forehead, face and nostrils. They isolated a gram-negative organism. Otherwise their series corresponded closely with the description given by Weeks. Occasionally a skin eruption is present with the diphtheritic type. Cutaneous manifestations alone have no reliable diagnostic or prognostic significance, but the condition needs to be differentiated from acute pemphigus (Roemer).

Membranous conjunctivitis has occurred under conditions that are unusual. De Schweinitz cited a case associated with Vincent's angina. Knapp[51] reported the case of an infant who lost an eye from perforation of the cornea; the organism of influenza was provisionally identified. Mason reported a case that followed measles; membranes were renewed for a period of fifteen months and finally the corneas became involved; the patient then had scarlet fever; staphylomas developed and the corneas became opaque; both eyes were lost. Zimmermann[52] reported a case in which the third injection of neoarsphenamine was followed by an exfoliative dermatitis and a croupous conjunctivitis with corneal necrosis, perforation, panophthalmitis and death; streptococci were present.

The possibility of corneal and intra-ocular infection by way of the blood stream can be entertained. Von Hoor's case may have been an example. Fever, adenitis, drowsiness and other constitutional disturbances have been present in the most severe cases. Baker observed that eye complications in smallpox occurred in direct proportion to the degree of prostration. There is ample evidence that general and focal infections, especially those with streptococci, predispose the conjunctiva and ocular tissues to injury. The metastatic origin of lesions of the eye, such as panophthalmitis in streptococcal or pneumococcal sepsis, has long been recognized.[53] Coppez, quoted by Weeks, said that bacterial toxins alone might cause corneal ulceration.

Burnett[54] mentioned a chronic form of membranous conjunctivitis in which the membranes are cast off, only to be renewed, almost daily, and in which there may be recurrences for many months. Jackson[55] said it might last for years and possibly result in loss of the globe from destruction of the cornea. Critchett and Juler[56] reported a case with a duration of fourteen months. Moore mentioned a case of eight years' duration. Parsons[30] noted that a very chronic form had occurred in connection with erythema multiforme. Other cases of prolonged duration have been noticed.

The principal complication is due to invasion of the eyeball, which commonly begins by infection in the cornea. Morax observed that early involvement of the cornea is usual, mostly with ulceration and hypopyon, and that the process often terminates as an ophthalmitis.[9] Wells thought that the process began with stasis around the cornea and that this gave rise to ulceration

41. MacCallan, A. F., and Rasheed Bey, A. F.: Membranous Conjunctivitis, Tr. Ophth. Soc. U. Kingdom **43:** 699-710, 1923.
42. Nettleship, E.: Three Cases of Ocular Diphtheria, St. Thomas's Hosp. Rep., new series **14:** 65, 1884.
43. Von Hoor: Diphtheritic and Croupous Conjunctivitis, Klin. Monatsbl. f. Augenh., March, 1913, p. 333.
44. Howe, L.: Pathology of Chronic Membranous Conjunctivitis, Tr. Am. Ophth. Soc. **8:**36, 1897.
45. Ball, J. M., and Toomey, N.: Vaccinia of the Eyelids by Homo-Inoculation, Tr. Sect. Ophth., A. M. A., 1922, p. 126.
46. Morax, V.: Précis d'ophtalmologie, ed. 3, Paris, Masson & Cie, 1921, p. 178.
47. Knapp, Arnold: Medical Ophthalmology, Philadelphia, P. Blakiston's Son & Co., 1918, p. 241.
48. Morton, A. S.: Persistent Membranous Conjunctivitis, Tr. Ophth. Soc. U. Kingdom **13:** 29, 1893.
49. Berry, G. A.: Manual of Practical Ophthalmology, London, Henry Frowde, Hodder & Stoughton, 1904, p. 112.
50. Patton, J. M., and Gifford, S. R.: Agricultural Conjunctivitis, Tr. Sect. Ophth., A. M. A., 1921, p. 226.
51. Knapp, Arnold: Severe Pseudomembranous Conjunctivitis in an Infant, Presumably Due to the Influenza Bacillus, Arch. Ophth. **33:** 386 (July) 1904.
52. Zimmermann, E. L.: The Rôle of the Arsphenamines in the Production of Ocular Lesions, Arch. Ophth. **57:** 513 (Sept.) 1928.
53. Irons, E. E.; Brown, E. V. L., and Nadler, W. H.: The Localization of Streptococci in the Eye, J. Infect. Dis. **18:** 315-334 (March) 1916.
54. Burnett, S. M., in Diseases of the Eye by Norris and Oliver, Philadelphia, J. B. Lippincott Company **3:** 194-199, 1898.
55. Jackson, Edward: Diseases of the Eye, Philadelphia, W. B. Saunders Company, 1900, p. 253.
56. Critchett, A., and Juler, H.: Chronic Membranous Conjunctivitis, Tr. Ophth. Soc. U. Kingdom **3:** 1, 1883.

with perforation and either sloughing or staphyloma. Lawson [57] said that either the iris would prolapse or the cornea would slough.

Blood and lymph stasis impair the nutrition of the cornea, which is bathed constantly in purulent material. Infection, ulceration and perforation are prone to follow. Healing may be effected by an anterior synechia and a dense leukoma. But if organisms gain access to intra-ocular tissues, then panophthalmitis or endophthalmitis may occur. The ultimate state is usually one of atrophy, but if corneal destruction and iris prolapse are both extensive, and the cornea is covered with exudate, a corneal staphyloma may precede the final stage. Berger [58] discussed a similar process in connection with gonorrheal conjunctivitis.

An ulcer may be covered with a pseudomembrane, formed by fibrous coagulation of its contents, and this membrane may extend over the cornea.[59] In some of the recorded cases, this process seems to have occurred.

The recurrent variety of membranous exudation is resistant to therapy. Jackson did not know of any treatment that would favorably modify the course of the disease. Moore said that the membrane would persist in spite of all medical treatment. Howe was unable to find any remedy really effective in his case. Mann, discussing Baker's report, said that he had failed to save eyes in smallpox because treatment was without effect. Hogg's patient lost both eyes for the same reason. Hutchinson [13] recommended the removal of the false membrane and the application of an almost saturated solution of silver nitrate. Mackenzie [8] said that neither procedure reached the seat of disease and was therefore of any avail. Streatfield's patient recovered after having had 4.5 per cent solution of silver nitrate applied daily for seven days. De Wecker (quoted by Bronner), Roemer, Swanzy and others advised against the use of caustics when a membrane was present. Tweedy reported beneficial results from quinine lotions when applied constantly by compresses.

The only agent of known value is antitoxin, and to be effective it must be used early, or before a secondary infection can become established. Standish [32] reported a case in which the eyeball was lost from ulceration of the cornea; in three other cases he thought that the corneas were saved by antitoxin. It is improbable that this agent could be curative in recurrent membrane formation. Parsons [14] and Roemer recommended antistreptococcic serum whenever streptococci were identified.

Moore suggested, as a last resort, obliteration of the conjunctival cavity by dissecting away all diseased tissue.

REPORT OF CASES

L. H., a boy, aged 27 months, admitted to the University Hospital, Dec. 14, 1928, when 9 months old had had pink eye of three weeks' duration with reported recovery; a cousin lost the sight of one eye from scarlet fever. The present illness began in October, 1928, with an abscess on a finger joint. This contained a straw colored serous fluid. He next had a coryza and a pharyngitis. About ten days from the beginning his right eye, and three or four days later his left eye became red and watery and the lids soon became swollen. The conjunctivae then became inflamed and were quickly covered by membranous exudates. The mother stated that these could be peeled off readily as casts of the lids. He was disposed to drowsiness for days at a time.

Examination of the right eye under general anesthesia disclosed a partial symblepharon and a corneal staphyloma; of the left, an extensive symblepharon, a healed corneal perforation and some shrinking of the organ. All four lids, none of which were now markedly swollen or tumefied, bore thick, tough, grayish yellow chamois-skin-like false membranes on the tarsal surfaces. These were readily removed entire with forceps; the underlying tissues presented a granular appearance with many bleeding points. A purulent secretion coated the nasopharynx. The submaxillary and submental glands were enlarged but not hard. The temperature was elevated.

The laboratory, from numerous smears and cultures, repeatedly reported the presence of *Staphylococcus aureus-hemolyticus*, *Streptococcus hemolyticus* and *Streptococcus viridans*, with once a gram-negative bacillus, but never diphtheritic or diphtheroid organisms. The false membranes consisted of fibrinopurulent exudates which contained numerous inflammatory cells, most of which were polymorphonuclear leukocytes. The Wassermann reaction was negative.

Throughout the two months' period of observation, a seropurulent fluid was intermittently discharged from the nose; a brownish red maculopapular eruption of varying intensity was present on the forehead, cheeks, thorax and forearms. The department of pediatrics, in several physical examinations, found nothing to account for the temperature variations, as recorded in the accompanying chart, except a persistent respiratory tract infection. The weight fluctuated between 28 and 29½ pounds (12.7 and 13.4 Kg.); the appetite was good and the patient slept well but was drowsy at intervals.

The false membranes were always limited to the tarsal areas of the conjunctivae; they were easily removed entire with forceps, but would be renewed within a few hours. None of the therapeutic measures employed had any noticeable effect on the disease.

The right eye was removed, Dec. 21, 1928, and the left, Jan. 21, 1929. The patient was discharged, February 11; at that time both sockets were discharging a purulent material similar in appearance to that seen on admission, except that it was not so fibrinous or abundant. At the time of discharge the disease had had a duration of four months.

When the right globe was enucleated the lens was delivered unintentionally; it was normal in appearance. The lens had evidently been expelled from the left eye when the cornea was ruptured.

I am indebted to Dr. E. V. L. Brown for reporting on sections of these eyes. The department of pathology reported on other sections. The changes in the right eye are those of a slowly progressing or chronic inflammatory process; the preponderance of polymorphonuclear leukocytes suggest that this was probably due to a secondary infection. The changes in the left eye are those of a fibrinous exudation undergoing organization by a proliferation of fibroblastic tissue, a process that is more characteristic of the streptococcus than of any other organism; mononuclears predominated in this eye.

One other case was found among the records of the University Hospital; the patient had been under the care of Dr. W. F. Boiler:

L. N., a boy, aged 14, was admitted, Nov. 23, 1920, and a convergent squint was corrected, December 3. Within forty-eight hours the eyeball became inflamed, swollen and proptosed from a streptococcic infection of the orbit, which was drained, December 7. At that time a thick, grayish white, firmly adherent membrane was removed from the conjunctiva. Cultures made from it yielded Klebs-Loeffler bacilli. The membrane continued to form for only four days, coincidentally with a pharyngeal diphtheria. An ulcer perforated the sclera, and the choroid and vitreous prolapsed, December 21. Fever and adenitis were present. The globe gradually shrank. Enucleation was performed twelve weeks after admission.

In this case the conjunctiva was injured during the incubation period of diphtheria. The loss of the eyeball was probably due to orbital cellulitis.

All volumes of the Section Transactions were examined in the search for information about this disease,

57. Lawson, G.: Diseases and Injuries of the Eye, Philadelphia, Lindsay & Blakiston, 1869, p. 27.
58. Berger, E.: Les maladies des yeux dans leurs rapports avec la pathologie générale, Paris, G. Masson, 1892, p. 306.
59. American Encyclopedia of Ophthalmology **12**: 9411, 1916.

but no paper was found on this subject. A limited survey was undertaken by sending inquiries to 100 ophthalmologists, who generously responded with seventy-three replies. One third of the correspondents had seen cases; these include Patton and Gifford,[50] Vail[36] and Boiler, whose cases have been referred to already. The remaining contributions were as follows:

Dr. Harry Friedenwald: 1. In a man, aged 61, the corneal epithelium was absent when he was first examined; the eye was painful, and there was a boardlike swelling of the lid, with membrane formation on the fifth day, the membrane being firmly attached. The laboratory was unable to identify any organism, but large doses of diphtheria antitoxin were given. The patient was drowsy and very ill in the early stage, and there was corneal ulceration and sloughing; enucleation was done two months after the onset. 2. In a man, aged 73, convalescent from grip, both eyes were involved, the left moderately; the right lids were red, and the globe was intensely congested, the cornea very hazy, and the pupil sharply contracted. There was a firmly adherent membrane on the lower lid, and a purulent secretion; no diphtheria bacilli or streptococci were found, but a gram-negative motile bacillus was present, identified as *B. coli-communis*. Recovery took place, but there was a large scar.

Dr. Ben Witt Key: Two women each had a streptococcic infection of three or four weeks' duration, with mild fever and moderate adenitis; the membranes were fairly attached; all corneas were involved, three with perforating ulcers, and all eyeballs were lost. There was moderate contraction of the culdesacs.

Dr. J. A. Stucky: 1. A woman, aged 31, with a history of trachoma since childhood, had intense pain and fever; the eyelids were swollen, and the eyeballs had ruptured and were covered with membrane when she was first seen. Both were enucleated. 2. A man, aged 27, with a history of trachoma and of smallpox some months before examination, had fever and cervical adenitis. The right eye showed an involvement similar to that in case 1, further complicated by symblepharon and cicatrices; the eyeball was removed.

Dr. A. C. Snell: In a woman, aged 20, the onset of the infection occurred during the eruptive stage of measles; the nasal mucosa was covered with membrane, and the patient had fever. Both eyes were involved for six weeks; cultures yielded streptococci, staphylococci and pneumococci. There was a firmly adherent membrane, which later separated as a complete cast of the conjunctival surface and corneal epithelium. The deep corneal ulceration healed with irregular scars and symblepharon; contractions of the culdesacs required repair. Vision was: right, 20/100; left, 20/65.

Dr. Harvey J. Howard and Dr. William M. James: 1. A boy, aged 3 years, was seen during convalescence from measles; he had fever and adenitis. The right eye was involved for seven days and the left for eleven days; both were lost. Hemolytic streptococci were identified. 2. A negro woman, aged 44, had syphilis, pulmonary tuberculosis and hypertension of 220/180; she was extremely debilitated. The eyes were affected for about six weeks; the right eye was lost, but the left healed after severe corneal ulceration. *Bacillus pyocyaneus* was identified.

Dr. G. S. Derby: A woman, aged 55, showed a hemolytic streptococcus infection of the left eye; the membrane was firmly adherent, and she had fever. Evisceration was done at the end of two weeks.

Dr. C. A. Veasey: A woman, aged 60, had a pneumococcus infection of the eye, with firmly adherent membrane, of one week's duration. There was no loss of eyesight.

Dr. R. Von der Heydt: A child, aged 3 years, had a pneumococcus infection of the left eye, with a large central leukoma.

Dr. H. S. Gradle: A woman, aged 40, lost the right eye after a Pfeiffer bacillus and pneumococcus infection of four days' duration, with a firmly adherent membrane, and fever.

Dr. G. E. de Schweinitz: In one patient, both eyes sloughed, as a result of a streptococcus infection, and death ensued.

Dr. A. E. Bulson: Two cases of mixed diphtheritic and streptococcic infection were more obstinate than cases of uncomplicated diphtheritic infection, but no globe was lost.

Dr. F. E. Burch: Two patients had a streptococcus involvement which was not severe.

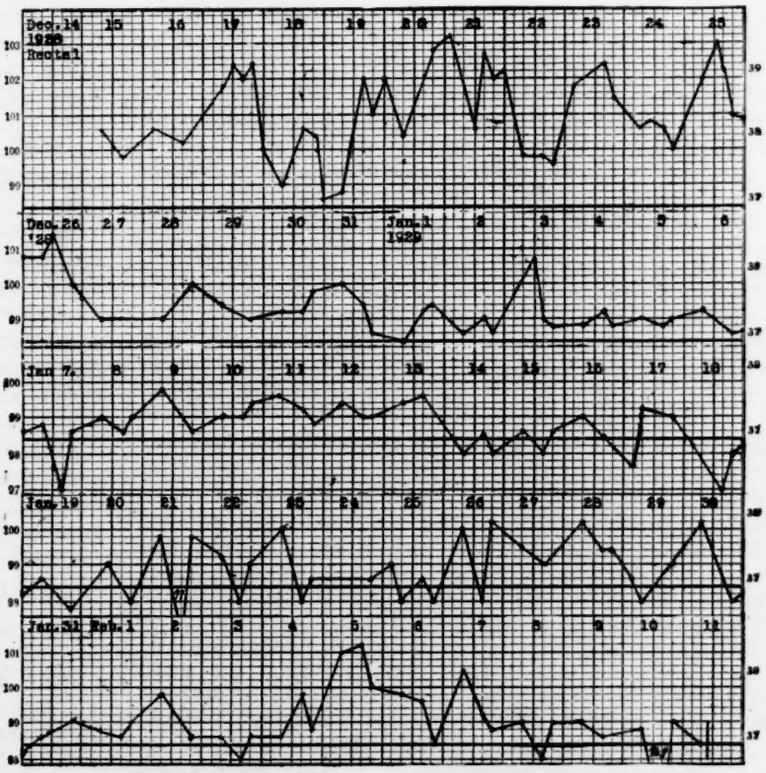
Dr. William Zentmayer: In two patients seen in consultation, the eyes were lost.

Dr. Burton Chance: Numerous patients were seen in the Wills Eye Hospital in the late nineties; in some of them the anterior segments of the eyeballs were destroyed.

Dr. Allen Greenwood: Years ago, in the diphtheria wards of the Boston City Hospital, there were several cases of infection, with loss of both eyes, and many deaths.

Dr. A. J. Bedell: Several patients were seen, but not in private practice, in whom diphtheria was the etiologic factor.

Dr. S. J. Beach: Antitoxin was found effective.



Temperature variations in author's case of membranous conjunctivitis.

Dr. Edward Stieren: Applications of 4 per cent silver nitrate solution daily usually resulted in a cure in from two to three weeks.

PEMPHIGUS WITH MEMBRANES

Dr. W. A. Holden: In one case the eyeball was destroyed.

Dr. Hans Barkan (while in Vienna): A diphtheritic membrane slowly changed to a mass of densely adherent scar tissue on both lids and globe, with total symblepharon; the eyeball was lost.

Dr. C. A. Bahn: In a girl, aged 16, with fever, the membrane frequently recurred for several months, with symblepharon; both eyes were blind.

Dr. A. N. Lemoine: In a girl, aged 14, with a pneumococcus infection of one month's duration, the membranes became firmly attached, and ulcers recurred. There were membranes in the mouth also, together with fever and contractures.

CONCLUSIONS

1. Conjunctivitis is a state of reaction to injury or infection.

2. Membranous exudates are intercurrent conditions which cannot be originated by injuries or organisms alone.

3. A predisposition or susceptibility must be present. This can result from (*a*) an injury, slight or severe; (*b*) a local inflammation in the incubation, active or convalescent stage, or (*c*) a general disease which has lowered the patient's resistance to a new infection.

4. To the predisposition must be added organisms that are capable of doing harm.

5. Membranous exudates of relatively short duration occur in some cases of diphtheria; they also occur in a recurrent form of prolonged duration, especially if streptococci are present. Frequently both eyes are affected.

6. The principal complication is ulceration of the cornea with intra-ocular infection and loss of vision, if not loss of the eyeball.

7. Treatment for the recurrent variety is usually without effect.

8. The condition of membranous exudation on the conjunctiva is only a symptom, usually of some general disease in which the ophthalmologist may have a consultation interest, or of an infection within the orbit in which he has a surgical responsibility.

ABSTRACT OF DISCUSSION

DR. CHARLES M. SWAB, Omaha: Membraneous conjunctivitis is a rare condition if the term is limited to those cases in which there is recurring membrane and subsequent ophthalmitis. Even with the existing confusion in the literature, whereby many cases not meeting this limitation are considered, it is still a rare condition. In reviewing the subject one is impressed by the infrequency of reports of membranous conjunctivitis at the present time as compared with an earlier period. Very few practicing ophthalmologists have encountered such cases more than twice, while older writers reported cases in much greater numbers. The lessened frequency of this ocular complication argues chiefly for two things: first, that there is a more general application now of the principles of hygiene, and, second, that if the incidence of the acute infectious diseases has not been reduced, at least the victims of such infections receive better treatment than formerly.

It is more or less uniformly concluded that membranous conjunctivitis is not solely due to the presence of pathogenic organisms in the conjunctiva. One may add that it does not arise as a part or symptom of any constitutional disease, although occurring in cases of respiratory diphtheria, measles and other acute infectious diseases. The contamination of the conjunctiva by micro-organisms is easily explained by other means as well as by metastasis. In the most destructive cases that have been reported, Klebs-Loeffler bacilli and streptococci have been isolated. These have occurred simultaneously and also independently. Roemer states that at least five other organisms may be responsible for the formation of membrane.

It is not unlikely that the element of corneal nutrition is a vastly important one in the development of the intra-ocular lesions of membranous conjunctivitis.

While there is but little similarity between keratomalacia and membranous conjunctivitis, the destructive character of the latter may be enhanced by a vitamin deficiency.

The dermatologic lesions reported in conjunction with membranous conjunctivitis have been strangely different in character. Cases of associated lesions of impetigo, exfoliative dermatitis, erythema multiforme and herpes have been recorded. Patton and Gifford have remarked on the inadequate description of the skin lesions.

The treatment of recurring membranous conjunctivitis is so entirely discouraging that it emphasizes our ignorance as to its true cause. In most of the cases described in the literature, loss of sight and loss of the eyeballs have been the usual termination.

SPECIFICITY OF SOLUBLE TOXINS PRODUCED BY HEMOLYTIC STREPTOCOCCI *

GEORGE F. DICK, M.D.
AND
GLADYS HENRY DICK, M.D.
CHICAGO

In 1924 we [1] described the specific, soluble toxin of scarlet fever, obtained by growing in broth the hemolytic streptococci with which experimental scarlet fever had been produced. The existence of this toxin was denied by Dochez,[2] who reported that he was unable to demonstrate any toxin in cultures of hemolytic streptococci isolated from scarlet fever. Subsequent reports by many investigators have confirmed the production in vitro of a specific, soluble toxin by scarlet fever streptococci.

The method [3] developed for the recognition of scarlet fever toxin has been employed to demonstrate toxins produced by other streptococci. Birkhaug [4] reported a soluble toxin derived from the hemolytic streptococci of erysipelas. Streptococcus toxins have been described as specific for puerperal sepsis [5] and for measles,[6] and reports have been made concerning toxins produced by streptococci found in rheumatic fever [7] and in septicemia.[8] The description of so many streptococcus toxins in a comparatively short period has caused confusion, which is increased by the fact that not all of the work reported has been well controlled.

In applying the neutralization test for identification of streptococcus toxins, some authors [9] have found cross neutralization between erysipelas toxin and scarlet fever antitoxin or between scarlet fever toxin and erysipelas antitoxin. To account for the cross neutralization they assumed that, while the soluble toxins produced by various hemolytic streptococci were different, they had certain common factors which were not specific and which overlapped. The importance of this subject merited a more extensive investigation.

THE SKIN TEST DOSE OF ERYSIPELAS TOXIN

No standard skin test dose of erysipelas toxin has been adopted. In order to use erysipelas toxin in skin tests, it was first necessary to determine the correct skin test dose. This was accomplished in a way somewhat similar to the method we had previously used for arriving at the standard skin test dose of scarlet fever toxin. Skin tests were first made with various dilutions of an erysipelas toxin in a series of human beings, including some known to be susceptible to recurring attacks of erysipelas. A skin test dose was selected

---

* From the John McCormick Institute for Infectious Diseases.

1. Dick, G. F., and Dick, Gladys H.: A Skin Test for Susceptibility to Scarlet Fever, J. A. M. A. **82**: 265 (Jan. 26) 1924.

2. Dochez, A. R., and Sherman, Lillian: Studies in Scarlatina and Preparation of a Specific Antiscarlatinal Serum, J. A. M. A. **82**: 542 (Feb. 16) 1924; Studies in Scarlet Fever Tr. A. Am. Physicians, 1924, p. 140.

3. Dick, G. F., and Dick, Gladys H.: A Method of Recognizing Scarlet Fever Streptococci by Means of Specific Toxin Production, J. A. M. A. **84**: 802 (March 14) 1925.

4. Birkhaug, K. E.: Proc. Soc. Exper. Biol. & Med. **23**: 136, 1925.

5. Lash, A. F., and Kaplan, Bertha: Puerperal Fever; Streptococcus Hemolyticus Toxin, J. A. M. A. **84**: 1991 (June 27) 1925.

6. Ferry, N. S., and Fisher, L. W.: Measles Toxin, J. A. M. A. **86**: 932 (March 27) 1926.

7. Birkhaug, K. E.: Rheumatic Fever, J. Infect. Dis. **40**: 549 (May) 1927; Rheumatic Fever, ibid. **43**: 280 (Oct.) 1928.

8. Pilot, Isadore; and Westlund, R. E.: A Toxin Producing Hemolytic Streptococcus from Septicemia, J. Infect. Dis. **41**: 208 (Sept.) 1927.

9. Kirkbride, M. B., and Wheeler, M. W.: J. Immunol. **13**: 19 (Jan.) 1927. Zlatogorov, S. I., and Derkatch, W. S.: J. Infect. Dis. **42**: 829, 1928. McLachlan, D. G. S.: J. Hyg. **26**: 84 (March) 1927. McCann, W. S.: Serum Treatment of Erysipelas, J. A. M. A. **91**: 78 (July 14) 1928. Park, W. H., and Spiegel, R. G.: J. Immunology **10**: 829 (Sept.) 1925.

which gave positive reactions in these individuals and clearly negative reactions in some of the others. We[10] reported, in 1927, experimental sore throat produced in human volunteers by inoculation with erysipelas streptococci. Intradermal injections of one skin test dose of erysipelas toxin, as determined by the method just described, were made in these volunteers before the throat inoculations. The resulting skin reactions had been positive. Repetition of the skin test with the same dose of erysipelas toxin during convalescence from the experimental sore throat gave modified or negative reactions. This, together with the positive reactions in persons subject to recurring attacks of erysipelas and clearly negative reactions in some other individuals, indicated that we had arrived at a skin test dose of toxin which gave reactions corresponding fairly closely with susceptibility to erysipelas.

Skin tests were made in a larger series of persons and it was found that the positive reactions were comparable in size and intensity to the positive reactions obtained with one skin test dose of scarlet fever toxin. By appearance alone, it is not possible to distinguish between the skin reactions produced with scarlet fever and erysipelas toxins.

COMPARISON OF SPONTANEOUS IMMUNITY TO ERYSIPELAS TOXIN WITH SPONTANEOUS IMMUNITY TO SCARLET FEVER IN THE SAME PERSONS

Five hundred persons aged from 4 months to 68 years were tested simultaneously with one skin test dose of scarlet fever toxin on one forearm and with one skin test dose of erysipelas toxin on the other forearm. Observations were made from twenty to twenty-four hours after the injections.

The reactions were negative with erysipelas toxin in 53.6 per cent and negative with scarlet fever toxin in 64 per cent. But of the 53.6 per cent immune to erysipelas toxin, 31.3 per cent were susceptible to scarlet fever toxin; and, of the 64 per cent immune to scarlet fever, 42.1 per cent were susceptible to erysipelas toxin. Strongly positive reactions to erysipelas toxin occurred in some persons who gave negative reactions to scarlet fever toxin, and others immune to erysipelas toxin showed strongly positive reactions with scarlet fever toxin.

No relation between spontaneous immunity to scarlet fever toxin and spontaneous immunity to erysipelas toxin was indicated by the results of these tests.

INCIDENCE OF SUSCEPTIBILITY TO ERYSIPELAS DURING CONVALESCENCE FROM SCARLET FEVER

To learn whether infection with scarlet fever streptococci produced immunity to erysipelas toxin, 100 convalescent scarlet fever patients whose skin reactions to scarlet fever toxin had become negative were tested with one skin test dose of erysipelas toxin; 52 per cent were found susceptible and 48 per cent immune to erysipelas toxin.

In a control group of 100 patients convalescent from other acute diseases, including poliomyelitis, diphtheria and pertussis, 58 per cent showed positive and 42 per cent negative skin reactions with erysipelas toxin. In the control series, 42 per cent were susceptible to scarlet fever. The positive skin reactions to erysipelas toxin were as strong in the patients convalescent from scarlet fever as in those convalescent from other acute diseases. The average age in the group convalescent from scarlet fever was somewhat greater than in the control group.

Results of the skin tests in patients convalescent from scarlet fever compared with the skin reactions in the control series furnished no evidence that an attack of scarlet fever conferred immunity to erysipelas toxin.

EFFECT OF ARTIFICIAL IMMUNIZATION WITH SCARLET FEVER TOXIN ON SUSCEPTIBILITY TO ERYSIPELAS TOXIN

Twenty-four persons susceptible to both scarlet fever and erysipelas, as indicated by positive skin reactions to both toxins, were immunized by subcutaneous injections of graduated doses of sterile scarlet fever toxin prepared from three different strains of scarlet fever streptococci. After immunization, they were retested with scarlet fever toxin on one arm and with erysipelas toxin on the other arm. The skin reactions with scarlet fever toxin had been changed from positive to negative in all cases, while the positive reactions to erysipelas toxin persisted.

It was thus learned that injection of scarlet fever toxin in adequate dosage confers immunity to scarlet fever without modifying the susceptibility to erysipelas.

SPECIFICITY TESTS OF TOXINS BY MEANS OF NEUTRALIZATION WITH KNOWN ANTITOXINS AND WITH CONVALESCENT AND COMMERCIAL SERUMS

None of the results thus far indicated that there was any immunologic relation between erysipelas and scarlet fever toxins such as to justify the theory of overlapping between the two toxins or inclusion of one in the other. The investigators who reported cross neutralization had employed as antitoxins commercial serums or occasionally human serum from a convalescent scarlet fever patient. The skin tests reported here show that approximately half of scarlet fever convalescents may be immune to erysipelas toxin. Blood serum from such persons might be expected to give confusing results in specificity tests on account of its ability to neutralize two different toxins.

Tests of commercial antitoxins showed that some preparations of scarlet fever antitoxin contain considerable amounts of erysipelas antitoxin and that some preparations distributed as erysipelas antitoxin contain scarlet fever antitoxin. This might be explained by the use of a number of different strains of streptococci in immunizing the horses and the inclusion in the number of nonspecific strains. Or it might be due to the transfer of immunized horses from one group to the other; so that serum from the same horse would be included at one time in a batch of erysipelas antitoxin and, at another time, in a lot of scarlet fever antitoxin.

PRODUCTION OF SPECIFIC ANTITOXINS

To avoid confusion due to the presence of more than one antitoxin in the serum and to obtain antitoxins specific for only one toxin, several normal horses were bled and their serums tested for scarlet fever and for erysipelas antitoxin. Horses whose blood serum did not contain any demonstrable scarlet fever or erysipelas antitoxin were selected for immunization. One was given subcutaneous injections of sterile toxin produced by a single strain of streptococcus which, in previous experiments, had produced typical scarlet fever on inoculation in human volunteers. Another horse was immunized against erysipelas toxin by subcutaneous injections of increasing doses of sterile toxin produced

10. Dick, G. F., and Dick, Gladys H.: Experimental Sore Throat, J. A. M. A. 89: 1135 (Oct. 1) 1927.

by a single strain of streptococcus isolated from the skin lesion in a typical case of erysipelas.

After immunization, the horses were bled, the plasma separated, 0.5 per cent phenol added, and the phenolized plasma passed through a Berkefeld W filter to insure sterility.

The antitoxin content of each serum was standardized against the corresponding toxin.

The following mixtures were prepared:

1. Scarlet fever toxin, one skin test dose per 0.1 cc.
2. Scarlet fever toxin plus scarlet fever antitoxin, one skin test dose of the toxin and one neutralizing unit of the antitoxin per 0.1 cc.
3. Scarlet fever toxin plus erysipelas antitoxin; one skin test dose of the toxin and one neutralizing unit of the antitoxin per 0.1 cc.
4. Scarlet fever antitoxin, one neutralizing unit per 0.1 cc.
5. Erysipelas toxin, one skin test dose per 0.1 cc.
6. Erysipelas toxin plus scarlet fever antitoxin, one skin test dose of the toxin and one neutralizing unit of the antitoxin per 0.1 cc.
7. Erysipelas toxin plus erysipelas antitoxin; one skin test dose of the toxin and one neutralizing unit of the antitoxin per 0.1 cc.
8. Erysipelas antitoxin, one neutralizing unit per 0.1 cc.

The mixtures were incubated two hours, placed in the refrigerator and used the same day.

SOURCES OF ERROR IN NEUTRALIZATION TESTS

Subjects Only Slightly Susceptible to Toxins.—Slightly susceptible subjects are not satisfactory for neutralization tests because they have enough antitoxin in their blood to interfere with clear differentiation. Individuals were selected for these experiments who gave brightly colored reactions at least 20 by 20 mm. in diameter with one skin test dose of each toxin.

Serum Sensitization.—Skin reactions due to serum sensitization conceal neutralization. On this account, all test subjects who showed positive reactions with either of the antitoxin control tests were excluded from the series. It is known that serums of different horses vary considerably in the reactions they may cause. Persons sensitive to the serum of one horse may not react to the serum of another horse. This necessitates serum control tests with each antitoxin used.

In comparatively rare instances, the degree of sensitization to horse serum is such that a large urticarial lesion appears immediately at the site of each injection of horse serum. In these cases, the serum control reactions may be negative at the end of twenty-four hours; yet no neutralization may be apparent in any of the toxin-antitoxin mixtures. Failure of the antitoxin to neutralize its corresponding toxin in such persons is presumably due to destruction of the antitoxin in the early urticarial reaction.

While slight serum reactions may not interfere with or conceal neutralization, it is evident that reliable conclusions as to neutralization cannot be made in cases in which serum reactions occur.

Contaminations.—Contaminations of the mixtures with molds or other organisms may cause skin infections not unlike ordinary toxin reactions in appearance. Infections are usually somewhat indurated and last longer than toxin reactions.

Local Immunity.—It has been recognized that some local change occurs in the skin at the site of intracutaneous injections of toxin and that the induced local condition may persist some weeks after the skin reaction has faded. This change in the skin was described by Zoeller as local immunity. It suggests that tests made at the site of previous injections might be modified. For this reason, repeated tests were not made on the same individual. A new subject was used for each set of tests.

Weak Toxins.—When a filtrate contains less than 500 skin test doses per cubic centimeter, so that its final dilution in the neutralization test is less than 1 : 50, skin reactions due to proteins in the culture medium frequently interfere with interpretation of the tests in much the same way that serum reactions interfere.

No toxin was used for neutralization tests in this work which could not be diluted at least 1 : 50.

Use of Toxins Without Preliminary Standardization.—Standardization of toxins used in specificity tests has been neglected in the work reported by most investigators. Standardization is necessary because neutralization is quantitative and there is considerable variation in the potency of toxins produced by different strains.

NEUTRALIZATION TESTS WITH THE SAME TOXINS EMPLOYED IN PRODUCING THE ANTITOXINS

The technic of neutralization tests is exacting and it is difficult to find suitable test subjects, but with care and adequate supply of clinical material it is possible to obtain clearly defined reactions, as shown in the illustration, taken from a typical neutralization test at the end of twenty-four hours.

Excluding all slightly susceptible subjects and those sensitive to either of the serums, neutralization tests were made in twenty-five persons with the mixtures already described.

In these tests, scarlet fever toxin was neutralized by the homologous toxin in every case. It was not neutralized by erysipelas antitoxin in any case.

Erysipelas toxin was neutralized by the homologous erysipelas antitoxin in all instances and was not neutralized by scarlet fever antitoxin in any case.

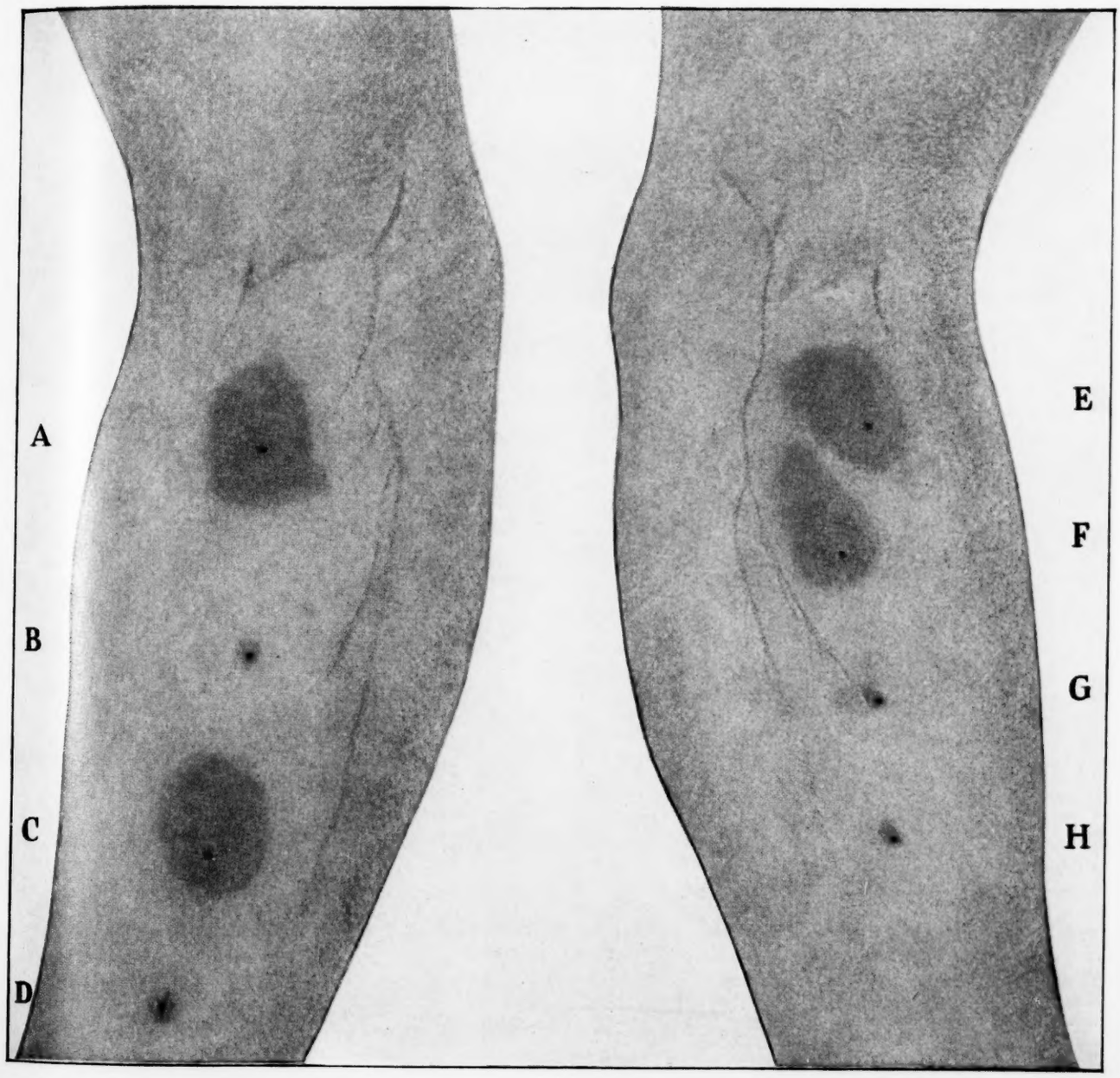
These results indicated a specific neutralization of each toxin by the corresponding antitoxin and the absence of cross neutralization between the scarlet fever toxin and erysipelas antitoxin or between the erysipelas toxin and scarlet fever antitoxin.

It was thus demonstrated that the strain of scarlet fever streptococcus and the erysipelas streptococcus employed were immunologically distinct.

NEUTRALIZATION OF TOXINS FROM OTHER STRAINS WITH ANTITOXINS PRODUCED WITH SINGLE STRAINS

Further tests were then made to learn whether the antitoxins produced by immunizing horses with toxins from single strains neutralize specifically the toxins of other strains from the same disease. For this purpose, hemolytic streptococci were isolated in pure culture from the throat in twenty-five cases of scarlet fever, and from the skin lesions in twenty-five cases of erysipelas.

The toxins produced by these organisms were obtained by growing each of the fifty strains in bottles of broth. The cultures were incubated under the same conditions for the same length of time; yet the toxins produced by the various strains ranged, in the case of the scarlet fever organisms, from 1,000 to 30,000 skin test doses per cubic centimeter of undiluted toxin; while filtrates from the erysipelas strains contained from none to 2,500 skin test doses per cubic centimeter. It was thus learned that erysipelas streptococci produce considerably weaker toxins than scarlet fever streptococci.



Reactions: *A*, scarlet fever toxin; *B*, scarlet fever toxin plus scarlet fever antitoxin: *C*, scarlet fever toxin plus erysipelas antitoxin: *D*, scarlet fever antitoxin: *E*, erysipelas toxin; *F*, erysipelas toxin plus scarlet fever antitoxin: *G*, erysipelas toxin plus erysipelas antitoxin; *H*, erysipelas antitoxin.

UNIV OF MICH

To avoid nonspecific reactions due to insufficient dilution of the culture medium proteins, a potency of at least 500 skin test doses per cubic centimeter, permitting a final dilution of at least 1:50, was necessary. All of the twenty-five scarlet fever toxins met this requirement, but toxins from most of the erysipelas strains were below this lower limit, only three of the twenty-five containing as much as 500 skin test doses per cubic centimeter.

Neutralization tests were made with each of the twenty-five scarlet fever toxins and with the three strongest erysipelas toxins, two or more satisfactory subjects being used for each toxin; thus, twenty-five standardized scarlet fever toxins and three standardized erysipelas toxins were tested against both scarlet fever and erysipelas antitoxin in seventy persons, fifty-eight being used for the scarlet fever toxins and twelve for the erysipelas toxins.

All of the scarlet fever toxins were neutralized by the scarlet fever antitoxin which had been prepared by immunizing a horse with toxin from a single strain of scarlet fever streptococcus, while none were neutralized by erysipelas antitoxin, though in two subjects reactions with the scarlet fever toxin and erysipelas antitoxin mixture was slightly weaker than with the toxin control.

The three erysipelas toxins were neutralized by erysipelas antitoxin in all of the twelve subjects on whom they were tested and were not neutralized by the scarlet fever antitoxin in any instance.

COMMENT

In view of the consistent results obtained in neutralization tests employing known antitoxins produced by immunization against toxins of single strains of scarlet fever or erysipelas streptococci, and considering the fact that both convalescent serum and commercial antitoxins may contain more than one antitoxin, it is not necessary to assume any immunologic overlapping between scarlet fever and erysipelas toxins to account for the irregularity of results reported by investigators who did not standardize the toxins tested or used convalescent or commercial serums as antitoxins without first verifying their specificity.

The weakness of most erysipelas toxins as compared with the scarlet fever toxins corresponds with differences in clinical manifestations of the two diseases. It would explain the fact that antitoxic immunity is frequently not acquired during an attack of erysipelas.

SUMMARY

No direct relation was demonstrated between spontaneous immunity to scarlet fever and spontaneous immunity to erysipelas toxin.

An attack of scarlet fever does not confer immunity to erysipelas.

Artificial immunization with scarlet fever toxin produces immunity to scarlet fever without conferring immunity to erysipelas toxin.

Erysipelas streptococci yield considerably weaker toxins than scarlet fever streptococci.

Serum sensitization, the use of toxins too weak to permit sufficient dilution to eliminate skin reactions resulting from proteins in the culture medium, failure to standardize toxins to be tested for specificity, and the use of convalescent or commercial serums containing more than one antitoxin have been common sources of error in neutralization tests.

Erysipelas antitoxin produced by immunizing against toxin from a single strain of erysipelas streptococcus neutralizes the homologous toxin and toxins from other strains of erysipelas streptococci specifically. It does not neutralize scarlet fever toxins.

Scarlet fever antitoxin obtained by immunizing a horse with toxin from one strain of scarlet fever streptococcus neutralizes the homologous and other scarlet fever toxins, but does not show any cross neutralization with erysipelas toxins.

CONCLUSION

The soluble toxins produced by scarlet fever and by erysipelas hemolytic streptococci are immunologically specific and distinct.

637 South Wood Street.

ACUTE PHOSPHORUS POISONING FROM THE INGESTION OF ROACH PASTE

REPORT OF FATAL CASE IN A CHILD *

STAFFORD McLEAN, M.D.
AILDRED MacDONALD, M.D.
AND
RUTH C. SULLIVAN, PH.D.
NEW YORK

The danger of the careless use of roach paste in households where there are children is emphasized by the case reported here. To our knowledge this is the first record of acute phosphorus poisoning in a child, proved by autopsy, and with a chemical examination during life.

REPORT OF CASE

History.—At 11 a. m., Feb. 12, 1929, the ignorant parents of a child, 18 months of age, brought him to the Babies' Hospital for emergency treatment. Little information of value could be obtained from them at that time, except that he had been vomiting on and off for three days; that the day before admission he had passed "very red urine," and that about eight hours prior to admission he had vomited blood. Six weeks previous he had "stuck a needle in his foot" and had been taken to another hospital for the removal of this foreign body. While there, however, he contracted tonsillitis and had been taken home against advice before a favorable opportunity had occurred to remove the foreign body, which according to the mother's statement was still in his foot.

The father was 35 years of age and the mother 31; both stated that they were in good health. The child was one of twins; the other was living and well. There had been no other pregnancies.

The patient weighed 6½ pounds (3 Kg.) at birth and had been breast fed for three months. After weaning he had been given various milk formulas until the introduction of solid food. At 18 months of age he was having whole cow's milk, soups, vegetables, cereals, eggs, oranges and other fruits.

The clinical picture which the child presented on admission of coma, jaundice, hematemesis, epistaxis and melena, with an extremely large, hard liver, created the suspicion that the child was suffering from acute phosphorus poisoning. The parents were then recalled for further questioning, and the following additional history was obtained:

February 8, four days before admission, the patient became drowsy and vomited. On the following day, February 9, the vomiting was repeated. On the same day his eyes became somewhat yellow; he was slightly drowsy and passed urine only once on that day. February 10, two days before admission, he became irritable and was given castor oil; the resulting stools were yellowish brown, and fluid in character, but no

* From the Babies' Hospital and the Department of Diseases of Children, Columbia University College of Physicians and Surgeons.

blood was noted. On the evening of this day he vomited five or six times. February 11, distention of the abdomen was observed and his wrists and ankles began to swell. The urine on this day was "blood red" and he vomited a "black material" four or five times. On the morning of February 12, some hours before admission, he vomited frequently a "black material," and the drowsiness and jaundice increased. He no longer recognized his parents and for sixteen hours previous to admission to the hospital he refused food and passed no urine.

It was learned from the parents that the child had a perverted appetite; he would often eat bits of coal, chew matches or take food from the garbage can.

For the extermination of roaches the mother had spread a thick layer of roach paste on slices of bread and on pieces of potato and had placed these under the icebox in the kitchen. She had observed some days previous that two potato chips on which roach paste had been placed were missing but did not associate their absence with the symptoms presented by the child. Since the child had had access to this room and presented on admission the clinical picture of acute phosphorus poisoning, it seemed reasonable to suppose that the roach paste was the source of the poison.

Physical Examination.—The child was well nourished and well developed, in a moribund comatose condition, with icteroid skin, slight cyanosis of the lips and finger nails, and edema of the hands and feet. A dark colored material (blood) was noted in the nostrils, oozing from the mouth and about the anus. This gave a positive guaiac test. There were two small ecchymotic spots in the skin, about 1 cm. in diameter one over the hypochondrium and another over the inner aspect of the left thigh.

The head was of normal shape; the sutures were apparently closed, and the anterior fontanel admitted the tip of one finger. The ear drums were normal. The pupils were dilated and irregular, and reacted sluggishly to light. The sclerae were jaundiced. Ophthalmoscopic examination revealed normal eyegrounds. The mucous membrane of the mouth was normal; the throat was injected and the tonsils were somewhat enlarged. The tongue and the mucous membrane of the cheeks were covered with a "black material," later found to be blood. The cervical glands were moderately large. The chest was symmetrical. The respirations were 16 a minute, with periods of apnea. No adventitious lung signs were elicited. The heart was normal in size, position, rate and rhythm. The upper extremities were flaccid, the lower somewhat spastic. The knee reflexes were exaggerated. All other tests of disturbance of the central nervous system were negative. The genitals were normal. The tourniquet test was negative. The pulse rate was 90, the systolic blood pressure 85, and the diastolic 45. The abdomen was soft; the walls were flaccid and permitted a satisfactory examination. The tip of the spleen was felt 1 cm. below the costal margin.

The most striking clinical finding was referable to the liver. The right lobe extended in the right flank to a point just above the crest of the ilium. The left lobe at the nipple line was 2 cm. below the costal margin. However, it was not the size which attracted interest but the extreme hardness of this organ as revealed to the palpating finger. Through the flaccid abdominal walls it felt very much like a liver which outside the body had been subjected to the influence of some hardening fluid.

The temperature was recorded twice during the period in which the child was under observation in the hospital. It was 98.6 F. on admission at 11 a. m.; four and one-half hours later it had risen to 103.

Laboratory Data.—The urine was acid, with a specific gravity of 1.020, 2 plus albumin, and a negative reaction for sugar. The acetone test was slightly positive; that for diacetic acid was negative. Hyaline and granular casts were seen. The guaiac test for blood was positive. Scattered sheaves of crystals resembling tyrosine were observed. In one of two examinations a dark colored stool gave a sharply positive guaiac test.

As previously stated, the child was admitted to the hospital at 11 a. m.; at 2:30 p. m., before any dextrose had been given, a spinal puncture was done and 6 cc. of cerebrospinal fluid was withdrawn. The fluid was clear and contained 6 cells. The test for globulin was negative (qualitatively). The cerebrospinal fluid contained 24 mg. per hundred cubic centimeters of dextrose. The smear and culture were both negative.

One and one-half hours later and one hour after the patient had been given 80 cc. of whole blood by the direct method of transfusion and 120 cc. of 20 per cent dextrose intravenously, the cerebrospinal fluid sugar was 30 mg. per hundred cubic centimeters. These therapeutic procedures in addition to 3 per cent dextrose by hypodermoclyses did not alter the clinical picture, and the child died nine hours after admission. In the case reported by McIntosh[1] in which recovery took place, dextrose was given both intravenously and subcutaneously in addition to blood transfusion by the direct method.

Roentgen Examination.—The long bones of the legs showed no abnormalities and the plates were similar in every respect to those of the twin brother except for the presence of a foreign body, apparently a needle, in the soft parts of the right foot.

Laboratory Tests

Blood

Hemoglobin	Red Blood Cells	Platelets	White Blood Cells	Polymorphonuclears	Lymphocytes	Mononuclears	Eosinophils	Reticulocytes	Coagulation Time
65	3,968,000	464,000	8,500	45	53	2	..	1.2	6 min.

Urine

Reaction	Specific Gravity	Albumin	Sugar	Acetone	Diacetic Acid	Guaiac	Microscopic Observations
Acid	1.029	++	Negative	++	Negative	++	Occasional pus cell; hyaline and granular casts; scattered sheaves of crystals resembling tyrosine crystals

Stools

Color	Blood	Culture
Tarry	Guaiac 4+	Negative

Stomach Contents

Color: "coffee ground material"; guaiac = 4+

Chemistry

	at 2:30 P. M.	At 6 P. M.*
Blood sugar	55 mg. per 100 cc.	65 mg. per 100 cc.
Blood chlorides	475 mg. per 100 cc.	
Blood nonprotein nitrogen	56.6 mg. per 100 cc.	
Icteric index	37.5 mg. per 100 cc.	
Van den Bergh	Immediate direct 4+	
Carbon dioxide combining power	48.5 per cent by volume	40.9 per cent by volume
Blood calcium	8.8 mg. per 100 cc.	
Blood phosphorus	2.7 mg. per 100 cc.	
Amino-acid	21.0 mg. per 100 cc.	
Cholesterol	0.080 Gm. per 100 cc.	
Albumin	5.92 Gm. per 100 cc.	
Blood globulin	2.58 Gm. per 100 cc.	
Blood fibrin	0.180 Gm. per 100 cc.	

Phosphorus found in liver, kidney, spleen and intestines

Cerebrospinal Fluid

Time	Amount	Pressure	Appearance	Cells	Globulin	Sugar	Smear	Chlorides
2:30 p. m.	6 cc.	Normal	Clear	6	Negative	24 mg. per 100 cc.	No organisms	750 mg. per 100 cc.
One hour later and one and one-half hours after intravenous administration of 120 cc. whole blood transfusion and 80 cc. of 20 per cent dextrose solution								
3:30 p. m.	7 cc.	Normal	Clear	8	Negative	30 mg. per 100 cc.	No organisms	750 mg. per 100 cc.

* Three hours after administration of 120 cc. whole blood transfusion and 80 cc. of 20 per cent dextrose solution.

1. McIntosh, Rustin: Acute Phosphorus Poisoning, Am. J. Dis. Child. 34: 595 (Oct.) 1927.

The accompanying table presents the laboratory data.

Chemical Observations.—Chemically there was manifested a breakdown of liver functions. According to Mann and Magath [2] there is a high margin of safety for all liver functions and 70 per cent of the liver may be removed without signs of liver insufficiency. The chemical tests of the blood, therefore, indicated extensive injury to the liver cells, which was confirmed at autopsy.

As an indication of the breakdown of carbohydrate metabolism, the blood sugar was 55 mg. per hundred cubic centimeters, considerably below the normal (from 80 to 110 mg.). In experimental animals with phosphorus poisoning, hypoglycemia has been found only as a terminal phenomenon.[3] In hepatectomized animals a progressive decrease in blood sugar [4] occurs. At a blood sugar level between 55 and 60 mg. per hundred cubic centimeters, clinical symptoms occur. Because of the removal of the main source of dextrose in the body, the glycogen in the liver, there is a lack of available dextrose. This interferes with cell metabolism in general and the metabolism of the cells of the central nervous system in particular. A definite clinical syndrome develops which is relieved temporarily by the administration of dextrose with a consequent prolongation of the life of the animal. In phosphorus and chloroform poisoning dextrose has been found to exert a protective effect, and well nourished animals have proved resistant to poisoning.

The blood nonprotein nitrogen was slightly increased, being 56.6 mg. per hundred cubic centimeters (normal, from 25 to 35 mg.), while the amino-acid was greatly increased, being 21 mg. per hundred cubic centimeters (normal, from 5 to 8 mg.). This points toward a disturbance of nitrogen metabolism. Unfortunately, it was not possible to complete the nitrogen partition of the blood by estimating the creatinine, uric acid and urea nitrogen. However, as a result of increased tissue destruction there was most probably an increase in blood uric acid. This has been reported in experimental phosphorus poisoning. This with the increase in amino-acids precludes a proportional increase in urea nitrogen. A decrease in the ratio of urea nitrogen to the total nonprotein nitrogen of the blood is a definite indication of liver insufficiency.

The increase in blood amino-acids may be attributed to a destruction of liver tissue. Such a marked increase is rare, and comparable figures have been reported only in acute yellow atrophy.[5]

There was a marked decrease in blood cholesterol, which was 0.08 gm. per hundred cubic centimeters (normal, from 0.14 to 0.17 Gm.). This showed derangement of another liver function, the maintenance of the level of blood cholesterol.[6]

There was, moreover, a breakdown in pigment metabolism. The blood serum gave a four plus immediate direct van den Bergh reaction. The icterus index was 37.5. The urine gave a negative test for urobilinogen.[7] These observations indicated a mild obstructive jaundice and were in agreement with the anatomic changes.

The plasma albumin, 4.92 Gm. per hundred cubic centimeters, and the globulin, 2.58 Gm., were normal. The plasma fibrin was slightly below normal, 0.180 Gm. (normal, from 0.2 to 0.5 Gm.). As the liver is the main, if not the only, site of fibrinogen formation, this was evidence of failure of still another liver function and may be a partial explanation of the extensive hemorrhages. Increase in coagulation time in phosphorus poisoning has been reported in the literature as the cause of the hemorrhages. In this case the coagulation time was within normal limits, being six minutes.

In connection with the hemorrhages it may also be pointed out that the serum calcium of 8.8 mg. per hundred cubic centimeters was at the lower limit of normal (normal, from 9 to 11 mg.).

The plasma inorganic phosphorus was considerably reduced, 2.7 mg. per hundred cubic centimeters (normal, from 5 to 6 mg.). The child clinically and by roentgenograms showed no signs of rickets. Failure of carbohydrate metabolism would probably account for the low phosphorus.

The plasma carbon dioxide combining power was found to be within normal limits, 48.5 per cent by volume (normal, from 45 to 65 per cent by volume).

The blood chlorides were also normal, 475 mg. per hundred cubic centimeters (normal, from 450 to 500 mg.), although there was a history of considerable vomiting for four days previous to admission.

Autopsy.—On account of the circumstances leading to the death of the child, it automatically became a coroner's case. Through the kindly cooperation of the medical examiner's department the autopsy was done at the Babies' Hospital. The presence of metallic phosphorus was demonstrated in the liver, kidney, spleen and intestines according to the method of Mitscherlich. Sugar was determined by the method of Myers and Bailey;[8] nonprotein nitrogen, Myers;[9] chlorides, Myers and Short;[10] carbon dioxide combining power, Van Slyke and Cullen;[11] cholesterol, Myers and Wardell;[12] calcium, Clark;[13] inorganic phosphate, Benedict and Theis;[14] plasma proteins, Wu;[15] amino-acids, Folin;[16] icterus index, Bernheim;[17] van den Bergh reaction, Ravdin;[18] urobilinogen, Wallace and Diamond,[7] and yellow phosphorus, by the Mitscherlich method.

The report of the postmortem examination was prepared by Dr. Martha Wollstein, pathologist to the Babies' Hospital, February 13. The anatomic diagnosis was: general icterus, subcutaneous edema, acute gastritis, fatty liver, fatty degeneration and congestion of kidneys, subserous hemorrhages, pulmonary congestion and edema, tuberculous focus in the right lung, cheesy tuberculosis of bronchial lymph nodes and hyperplasia of the spleen.

There was a mild general icterus of the skin and sclerae, marked edema of both feet and legs, and less edema of the hands. Only an abdominal incision was made by Dr. Fischer of the medical examiner's department. Examination of the brain was not permitted.

The lungs showed no pleurisy and no pneumonia. Both were moderately congested, edematous and well aerated throughout. Near the anterior border of the right middle lobe there was a small, firm nodule which on section proved to be a cheesy area 0.5 cm. in diameter surrounded by two smaller tuberculous masses. No miliary tubercles were present. The trachea and bronchi were deeply congested. At the bifurcation of the trachea there was a lymph node 2 cm. long by 1 cm. wide which had softened, leaving only a narrow rim of cheesy cortex; tubercle bacilli were found in a stained area from this caseous node.[19] Two smaller nodes on the right main bronchus were 0.5 cm. long and contained yellow tubercles.

The heart showed no lesion. The foramen ovale and ductus arteriousus were closed. The endocardium and the lining of the aorta were slightly bile stained. There were subserous hemorrhages on the anterior surface of the left ventricle along the coronary artery, and there was a shower of small hemorrhages in the pleura and pericardium just above the diaphragm on the left side.

The thymus weighed 15 Gm. It was fleshy and congested. The spleen weighed 56 Gm. It was red, enlarged and firm. The

2. Mann, F. C., and Magath, T. B.: Am. J. Physiol. **59:** 485, 1922.
3. Williamson, C. S., and Mann, F. C.: Am. J. Physiol. **65:** 267 (July) 1923.
4. Mann, F. C., and Magath, T. B.: Studies on Physiology of Liver, Arch. Int. Med. **30:** 73 (July) 1922.
5. Stadie, W. C., and Van Slyke, D. D.: Effect of Acute Yellow Atrophy on Metabolism and on Composition of Liver, Arch. Int. Med. **25:** 693 (June) 1920.
6. Rothschild, M. A., and Felsen, J.: Cholesterol Content of Blood in Various Hepatic Conditions, Arch. Int. Med. **24:** 520 (Nov.) 1919.
7. Wallace, G. B., and Diamond, J. S.: Significance of Urobilinogen as a Test for Liver Function, Arch. Int. Med. **35:** 698 (June) 1925.
8. Myers, V. C., and Bailey, C. V.: J. Biol. Chem. **51:** 187, 1922.
9. Myers, V. C.: Practical Chemical Analysis of Blood, St. Louis, C. V. Mosby Company, 1924.
10. Myers, V. C., and Short, J. J.: J. Biol. Chem. **44:** 47 (Oct.) 1920.
11. Van Slyke, D. D., and Cullen, G. E.: J. Biol. Chem. **30:** 347 (June) 1917.
12. Myers, V. C., and Wardell, E. L.: J. Biol. Chem. **36:** 147 (Oct.) 1918.
13. Clark, E. P., and Collip, J. P.: J. Biol. Chem. **63:** 461 (March) 1925.
14. Benedict, S. R., and Theis, R. C.: J. Biol. Chem. **61:** 63 (Aug.) 1924.
15. Wu, Hsien: J. Biol. Chem. **51:** 33 (March) 1922.
16. Folin, Otto: J. Biol. Chem. **51:** 377 (April) 1922.
17. Bernheim, Alice R.: Icterus Index (A Quantitative Estimation of Bilirubinemia), J. A. M. A. **82:** 291 (Jan. 26) 1924.
18. Ravdin, E. G.: Am. J. M. Sc. **169:** 850 (June) 1925.
19. The caseous tuberculous gland indicated still further questioning of the parents for the purpose of obtaining information as to a tuberculous contact. It was elicited from them that an adult friend of the household who made frequent visits to the home and had been in intimate contact with the child from birth is now in the hospital because of proved pulmonary tuberculosis. This seems to explain the tuberculous infection of the patient.

capsule was smooth, and the cut surface was normal, with visible malpighian bodies.

The liver was markedly enlarged, firm, and yellowish green. The capsule was smooth; the substance was markedly fatty, with small areas of congestion. No necroses were present. The gallbladder contained about 4 cc. of light green viscid bile.

The stomach showed postmortem digestion at the cardiac end. Its contents were dark brown mucus. The walls were edematous, the mucosa especially so. The rugae were yellowish and the rest of the mucosa was red, with small capillary hemorrhages. The lymph nodes along the upper border of the stomach and in the fissure of the liver were slightly enlarged, pale and moist. The longest was 1 cm. The duodenum was normal. The mesenteric lymph nodes were all enlarged and measured from 0.5 to 1 cm. in diameter. Some were pale red and some pale yellow. The peritoneum was normal. The pancreas was firm, and of normal size. The suprarenals were thin with a yellow, narrow cortex and a narrow medulla which tore readily. The left kidney was taken by the medical examiner; the right weighed 64 Gm. It was enlarged. The cortex was swollen and yellow. The medullary pyramids were deep red. The capsule was free. The markings were somewhat blurred. The ureters and the bladder were normal.

Microscopic Examination.—The thymus showed that the interlobular connective tissue was edematous and its vessels contained red cells. Within the lobules the lymphocytes were densely packed, making a wide periphery and a narrower medulla in which there were numerous Hassall's bodies. In one lobule there was a large cheesy area surrounded by typical younger tubercles with giant cells and epithelioid cells. In another lobule a small hemorrhage had occurred, making an area in the medulla where the lymphoid cells were absent and one giant cell was present. In another lobule there were several typical giant cells surrounded by a small area of coagulation necrosis, evidently an early tuberculous areas. This was the case in a number of the lobules and such areas were quite readily distinguishable from the Hassall bodies, which were numerous and small. This is a rare case of early tuberculosis in the thymus gland.

A bronchus showed that some of the lining cells were absent and there was much mucus entangling leukocytes and some red cells on the free surface. All the blood vessels in the submucosa were widely dilated and filled with red cells. Beyond the cartilage and perichondrium there was a large lymph node in which young tubercles were present in some of the follicles, while a large coagulation necrosis area occupied the center of the gland. Softening had occurred. Another section of a large bronchus showed a normal wall except that the lining epithelium was peeling, but beyond the perichondrium there was a small lymph node which showed tubercles in all the follicles and a conglomerate area of coagulation necrosis in the center. The lung showed that the pleura was edematous and some of the alveoli contained serum with peeling respiratory cells. There was no pneumonia. All the vessels were distended with red blood corpuscles. No tubercles were present. A section from the right middle lobe showed some lobules of empty alveoli and several in which the alveolar exudate was undergoing coagulation necrosis. There was a conglomerate cheesy area surrounded by young tubercles and solid lobules.

The spleen showed that the septums and capsules were normal. The sinuses contained red cells, and small hemorrhages into the pulp had occurred. The malpighian bodies were numerous, and some showed very early tubercles. No iron pigment was present.

The liver did not show any normal liver cells in the section. All contained small or large drops of fat, though the smaller were more numerous. The blood vessels were peculiarly empty, and the swelling of the liver cells had compressed the sinusoids so that only a few could be distinguished. The Kupffer cells were not swollen. The bile capillaries were small and empty, while the ducts were normal. Regeneration had begun in some of the interlobular angles, but there were no tubercles. There was no iron pigment in the liver. There was no increased amount of connective tissue as demonstrated by the Van Giesen and Mallory aniline blue stain. Frozen sections stained with sudan III showed large fat drops in the liver cells throughout the whole lobule, but most marked at the periphery.

The suprarenal showed that the glomerular zone was indistinct because its cells contained much lipoid. The fascicular zone was normal. The degeneration zone was narrow, and in the medulla there were still masses of cortical cells with congested vessels and very few nerve cells. In the cortex under the capsule the vessels were congested. No iron pigment was present. Only a few thin connective tissue fibers demarcated the cortex from the medulla. Frozen sections stained with sudan III showed most fat in the glomerular zone and less in the fascicular and degeneration zones.

The muscle cells of the diaphragm did not show their striations plainly but gave a hyaline appearance. There was no inflammatory reaction.

The myocardial cells showed their striations quite distinctly. There was no inflammatory reaction. Vacuolization was very mild. Frozen sections showed no fat.

The lining epithelial cells of the ureter were peeling, but the other coats were normal. There were two conditions which stood out in the kidney section: the intense congestion of all the blood vessels, and the marked degeneration of the epithelial cells in the cortex. In the convoluted tubules the epithelium was greatly swollen, and fat drops were present. Many nuclei had disappeared, but peeling was not marked. In Henle's loops peeling was much more marked, so that many of these tubules showed a wide lumen, and a bare basement membrane. Even the collecting tubes contained fat within their cells. The glomeruli showed degeneration of their capsular epithelium and the presence of granular material in large amounts in the subcapsular space. The capillary endothelium was swollen, so that circulation was blocked and few red cells could be seen within the capillaries. The connective tissue showed no reaction. A calix wall showed congestion but no inflammation. The epithelium over a papilla had largely peeled away, but that over the adjacent calix was normal. No iron pigment was present, and no increased connective tissue. Frozen sections stained with sudan III showed large drops of fat near the basal membrane in the cells lining the convoluted tubules, Henle's loop and many collecting tubules.

The lining epithelium of the stomach was absent and the outer half of the glands showed degeneration of the lining cells. The inner portion was in good condition. The submucosa was markedly edematous and its vessels were congested. In some places cell structure was almost lost and the whole submucosa had a homogeneous appearance and stained bright pink. Hemorrhage had not occurred. The muscle coats showed no lesion.

A frozen section of the rectus muscle showed that some of the fibers were swollen and had lost their striations. Some showed small fat globules, but in no instance had the whole fiber undergone degeneration.

The microscopic diagnosis was fatty degeneration of the liver; intracapillary nephritis and fatty degeneration of kidney epithelium; acute gastritis; fatty degeneration of the rectus muscle, and tuberculosis of the right lung, tracheobronchial lymph nodes and thymus.

SUMMARY

1. Roach paste containing 1.19 per cent elementary phosphorus is dispensed in a container which is not labeled in a manner emphasizing the danger to children from its careless use.

2. A portion of this paste was placed in easy access of a child, aged 18 months. Fatal phosphorus poisoning followed. This was proved chemically and by autopsy.

3. Chemically there was manifested liver injury as shown by a breakdown in carbohydrate, nitrogen, bile pigment, fibrin and cholesterol metabolism.

4. The autopsy observations indicating the harm due to phosphorus were chiefly manifested as hemorrhages in the pleura and pericardium and as lesions of the stomach, kidney, liver and striated muscle.

17 East Seventy-First Street.

THE TREATMENT OF SYPHILIS IN ITS RELATION TO PREVENTION*

THOMAS PARRAN, JR., M.D.
Assistant Surgeon General, U. S. Public Health Service
WASHINGTON, D. C.

The perpetuation of every communicable disease is dependent on transmission of the infectious agent from the sick to the well. The epidemiologic progress of such a disease, therefore, may be likened to a chain, of which the events of communication of infection from the affected individuals to the susceptible ones form the connecting links. If sufficient search is made, it will be found in every instance that the pathways over which these links are stretched are more or less definitely established. There may be more than one link between cases, there may be more than one pathway, or the route may be long and devious; but the chains and the links definitely forged for each disease exist. The health officer, therefore, has only to find the link which most easily can be broken in order to destroy the chain and control the disease. Vaccinate the susceptible individuals and one need have no fear of smallpox. Eliminate the anophelene mosquito and there need be no worry about the human carrier of malaria or about protecting the susceptible person. Keep the first case out of the country and *Aedes egypti* can be disregarded so far as the spread of yellow fever is concerned.

It is fortunate, indeed, that syphilis is a disease in which the connecting links in the chain of infection occur singly and the pathway over which each link stretches is direct and definitely known. Unlike many of the common communicable diseases in that it can be spread only by contact of the most intimate kind, and in sharp contrast with other maladies in the control of which the sanitarian must deal with an intermediate host or vector, syphilis should be peculiarly susceptible to control by a method which, theoretically at least, appears simple by comparison—elimination of sources of infection by treatment.

Seldom has science made to the cause of public health a contribution so fraught with possibility in the field of prevention as that embraced in the discoveries which took the guesswork out of the diagnosis of syphilis and provided a dependable method of treatment. The identification by Schaudinn and Hoffman of *Spirochaeta pallida,* which made possible the diagnosis of syphilis early in the chancre stage, the development by Wassermann and others of the complement fixation test, which provided a means for demonstrating the presence of syphilitic infection in the absence of visible and subjective evidence, and the discovery by Ehrlich of compounds of arsenic which can be administered to man in amounts sufficient to destroy the spirochete without also killing the patient placed weapons in the hands of the medical profession which are superior to those available against most other diseases. It is granted that the modern treatment of syphilis has its limitations so far as absolute cure may be concerned; but that sources of infection can be eliminated by at least temporary sterilization, through the action of the arsphenamines on spirochetes in open lesions, seems definitely established. Here is the means of breaking the chain. Once applied, the problem is solved. If every case of syphilis can be given adequate treatment there will be no more syphilis.

After the discovery of arsphenamine by Ehrlich, it seemed possible that syphilis might in a short time be completely eradicated through prophylaxis by treatment; and that this hope was not altogether an idle dream apparently has been proved by results already obtained in the control of the disease abroad. Syphilis has been on the decline in the Scandinavian countries for several years. In Germany, Belgium, England and, to a lesser extent, in France, the decrease in the number of cases reported under treatment, from the peak which existed immediately following the World War, has been remarkable. The second census of cases under treatment in Germany showed a reduction of primary and secondary syphilis amounting to two thirds during the period 1919 to 1927. In Belgium, though a slight increase has been reported for the past two years, cases under treatment have shown a decline of five sixths from the peak to which they rose after the war. In England the number of cases handled in public treatment centers dropped from nearly 43,000 in 1920 to a little over 22,000 in 1924. These decreases have been attributed in almost every instance to the application of early and energetic treatment. It is on this one frontier that administrative and educational activities have been centered. It is true that the full significance of some of the decreases reported has been questioned. It may be said, however, in support of those who point to the figures as an indication of actual reduction in prevalence, that the decline of cases under treatment has occurred in the face of the most intensive efforts to bring infected individuals under medical care. Even when recrudescences have occurred, most critics have ascribed the increases to relaxation of effort or, as in France, to change in the method of treatment. It is significant also that, while syphilis appears to have been decreasing markedly, the decline in the number of cases of gonorrhea, which does not so readily become noninfectious by treatment, has been far less striking.

Methods of bringing patients to treatment have varied. In Germany, submission to medical care has been compulsory and clinics have been provided free for persons in all walks of life. England has provided free clinics and laboratory service, supported largely by the central government, and free arsphenamine for physicians treating private patients; but submission to treatment has not been compulsory. In Belgium and France, treatment has been secured partly by providing clinic service and partly through developing the active interest and cooperation of the medical profession.

Although accurate data as to the trend of new syphilitic infection in this country are lacking, it does not appear that the venereal disease control campaign has produced in the United States results comparable with those which have been reported from Europe. We may reasonably assume, I think, that improvement in methods of diagnosis and the provision of free treatment facilities, together with the effect of educational measures and activities for the repression of prostitution carried on during and since the war, must have lessened exposure to infection to some degree and thus made the prevalence of syphilis less than it would have been had these measures not been applied. But certainly there has been no striking evidence presented to show that the disease has decreased in prevalence in the United States to an extent comparable to that in certain European countries.

It is true that the death rate from paresis has declined 27 per cent in the original registration states during the period 1900 to 1925, and this is perhaps a reflection

*Read before the Section on Preventive and Industrial Medicine and Public Health at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

of the influence of better treatment by the arsphenamines in preventing nervous system complications rather than a decrease in new cases. The fact which is of first importance to health officials and the medical profession generally is that syphilis still is needlessly prevalent in this country. A census of cases under active observation or treatment made by the Public Health Service, with the cooperation of the American Social Hygiene Association and various local medical and public health organizations, in communities with a total population of 15,500,000, warrants the statement that there are, in this country, 643,000 cases of syphilis constantly under medical care, of which 35 per cent, or 225,000, are early cases, and that no less than half a million new infections occur for which treatment is sought each year. Of the patients under treatment, 64 per cent are being treated by physicians as private patients, while the proportion of early cases treated as private patients is even higher.

There are a number of obstacles to the effective control of syphilis by treatment. These include the presence of blind and unrecognized cases; the failure of patients to seek treatment for what appears to be an insignificant initial sore; the symptomatic relief afforded by a few doses of the arsphenamines, which leads to a lapse in treatment; the failure of physicians to diagnose the early case as well as the late case with obscure symptoms and to persist in giving treatment until rigid criteria of cure have been met; the inadequate treatment facilities in many states for indigent patients, and the cost of treatment for the patient of small means, which frequently forms an effective bar to continual medical care when the urge of subjective symptoms is absent. Most of these obstacles can be minimized. Education of the public has done much to impress on the infected individual the necessity of early and adequate treatment; the more general use of the dark-field and Wassermann test is bringing an increasing percentage of cases to light; more physicians than formerly are giving modern treatment; in the last decade many venereal disease clinics have been established for the treatment of indigent patients, and medical organizations are giving much study to the problem of the costs of treatment to the patient of small means. All of these efforts need to be extended.

Although it is obvious that much more progress needs to be made in extending public clinic service to indigent patients and in improving the quality of such service, both medical and social, at least half of all syphilitic patients probably will continue to be treated as private patients. Differences in the form of government, economic conditions and other factors involved make it very unlikely that methods which have been used in the Scandinavian countries and in England and Germany will be followed in the control of syphilis among the population as a whole in this country in the near future, if at all. If we are to utilize treatment in a major rôle in checking the spread of this disease, we must therefore place our reliance for the present at least on private physicians no less than on clinics and dispensaries.

An analysis of data obtained in the prevalence studies made by the Public Health Service indicates that only 38 per cent of all registered physicians are constantly treating one or more cases of syphilis and that 25 per cent of all physicians are treating 90 per cent of the cases not treated in clinics. Whether this means that cases are not being recognized and treated by the physician in general practice, that patients are going direct to the specialist, or that the condition is being recognized by the general practitioner and referred to the specialist for treatment, is problematic. If the latter surmise is true, it probably is a fortunate circumstance; the treatment of syphilis has become so highly specialized that few are fully prepared to carry it out properly. However, I believe that it may safely be assumed that a large proportion of patients with syphilis, especially those in the later stages of the disease, do not present themselves first to the syphilologist; many such patients are not aware that they have the disease. It is believed, also, that many of these cases are not recognized and treated. The general practitioner therefore holds the first line of defense in the fight against the spread of syphilis; and whether the physician in general practice treats syphilis or not, he at least should be so skilled in diagnosis and diligent in his search for the disease that he will not fail to recognize it in its early stage and will be able to uncover the obscure cases in the later stages. If he does attempt the management of the case he should be thoroughly familiar with the use of proved remedies in the various stages and manifestations of syphilis, the proper interpretation of the results of laboratory tests and the accepted criteria of cure. Further, if he does not treat syphilis but encounters in his practice cases which cannot be sent to specialists or clinics, he at least should be prepared to administer enough treatment, after a positive diagnosis has been made, to keep open lesions sterilized and thus eliminate the case as a source of infection to others.

Unfortunately, thousands of physicians still are using the inadequate methods of a decade or two ago in the diagnosis and treatment of syphilis. Since control by treatment at present lies to such a large extent in the hands of practicing physicians, it is important that every private physician who needs instruction should have the opportunity to become adequately informed concerning the recognition, treatment and prevention of syphilis. This responsibility should be shared by the medical society, either state or local, and public health agencies, and can be discharged successfully only through concerted effort of the most intensive kind definitely directed toward the particular objective in view.

The responsibility for the adequate instruction of the private physician of the future falls on the medical school. We should not attempt to make a syphilis specialist of every student; every graduate who intends to practice medicine or to engage in any branch of medical, surgical or public health work should know thoroughly certain fundamental things about the diagnosis, treatment and control of syphilis. It is not possible here to enter into a lengthy discussion of these fundamentals; but I wish to emphasize briefly certain basic principles in the management of syphilis.

The first concerns the diagnosis of the genital sore. The day is past when the physician can look on a genital sore and without further ado conscientiously render an opinion as to whether or not the lesion is a chancre. Likewise the "therapeutic test" for early syphilis—making a diagnosis through the use of treatment—has passed into the beyond of disrepute. We now know that the initial sore of syphilis may resemble closely almost any skin lesion which may occur on or about the genitals and that a chancre may be hidden by a superimposed chancroid. We know also that if we begin treatment of suspected early syphilis before a positive diagnosis is made, the patient may never know whether or not he actually has had the disease and must regard himself as syphilitic for the remainder of

his life. In the repeated dark-field examination, in the "local" Wassermann test, and in the blood Wassermann reaction (which first becomes positive late in the chancre stage), we have dependable methods for making a certain diagnosis of early syphilis. The aim, therefore, should be to prove that the genital sore is a chancre and to regard every such lesion as syphilitic until it is proved, by every reasonable and available means, to be otherwise.

Of equal importance are the use and interpretation of laboratory tests in the management of syphilis and in the diagnosis of obscure cases. We should bear in mind that, while for diagnostic purposes a positive Wassermann test properly made means syphilis in nearly 100 per cent of the cases in which it occurs, a single negative reaction may mean precisely nothing as a diagnostic sign in the late manifestations of the disease or as a criterion of cure following the administration of treatment. The examination of the spinal fluid at the end of active treatment of early syphilis is a necessary addition to usual practice which frequently is neglected.

When the Wassermann test becomes a more routine procedure in the examination of patients, undoubtedly it will uncover many cases of latent or obscure syphilis which now are unrecognized. Many syphilitic individuals are unaware that they have ever had syphilis. This is particularly true of women, in whom the chancre stage easily may pass without recognition. It is in the examination of pregnant women, however, that the routine Wassermann test is demanded particularly. A summary of published reports shows that nearly 7 per cent of approximately 50,000 Wassermann tests made on pregnant women were positive. The diagnosis of syphilis in the expectant mother is of importance not only in affording relief to her but also in the prevention of congenital syphilis. A child born of an actively syphilitic mother is almost sure to have syphilis; on the other hand, if the disease is recognized early in the pregnancy and adequate treatment is applied, congenital syphilis may be prevented in nearly every instance.

The field of prevention not only covers the elimination of sources of infection but also may be extended to include measures directed against the occurrence of those late manifestations of syphilis—paresis and locomotor ataxia—which help to fill our hospitals and other institutions with the insane and helpless. The physician should realize that every case of early syphilis unrecognized and untreated or inadequately treated is a potential case of late syphilis which sooner or later may lead to the patient's becoming a public charge.

I shall make no attempt to discuss the details of therapy in syphilis or the relation of the physician to the public health and community efforts against the venereal diseases. Suffice it to say that an essential weapon for the complete elimination of sources of infection lies in earlier recognition of more cases and in the prompt institution of adequate treatment. Adequate treatment today means not simply the administration of a few doses of the most handy arsenic preparation but the scientific management of every case according to its individual requirements over a period which may reach into many years or perhaps extend over a lifetime.

SUMMARY

I think I can sum up most satisfactorily what I have endeavored to stress particularly in this paper by pointing out that the physician in general practice has, in dealing with the venereal diseases, a responsibility to the public such as he bears in no other instance in his relation to preventing the spread of disease. On account of the very nature of the mode of spread of syphilis and the resulting secrecy with which its occurrence is surrounded, the family physician alone usually is aware of the identity of the case and in possession of the opportunity not only to treat and advise the patient but to secure information and endeavor to apply measures that will lead to the discovery and elimination of other sources of infection. He it is, also, who frequently has the first opportunity to find the hidden case of syphilis and to bring it under treatment. If he fails to assume and discharge this responsibility properly, it may be because he has not had the opportunity to see the problem from the point of view of prevention. If he has not, it is the duty of the health officer, the medical society and the medical school to see that he does.

ABSTRACT OF DISCUSSION

DR. WILLIAM F. SNOW, New York: There are many things we would like to hear discussed here. There is, for example, the difficulty of keeping the patients under treatment. The cost of private practice and the cost of clinic practice are high. The difference lies in the fact that in the clinic, a great part of the cost is distributed by taxation or through philanthropy, either to all of the people of the community or to those who support the clinics, whereas in private practice the cost is borne by the patient. Somehow we must, in the interests of the public health, work out an effective method of giving adequate treatment in all cases of syphilis and gonorrhea within the limits of the financial resources of the patients and with proper remuneration of the physician. Dr. Parran's paper indicates that we are making progress in this country. We have, of course, to estimate the dependability of our mortality statistics. However, according to the United States registration area record of 1900 and the record of mortality from syphilis (including locomotor ataxia and other causes of death due to syphilis), our mortality from 1917 to 1928 fell from 20.7 to 13.4 per hundred thousand, or about a 35 per cent decrease, which happens to be exactly the same percentage of decrease that was observed in Wales for a similar period. Dr. Osborn's recent report for Connecticut shows that the largest part of his laboratory service is devoted to the aiding of physicians in the diagnosis and treatment of syphilis and gonorrhea, and this is indicative of the demand for such laboratory aid everywhere. Since that is so, it would seem that the physician who is alive to the possibility of syphilis as a factor in his diagnosis would also be alive to the need for treatment. This seems to me to justify the belief that the apparent decrease in syphilis is a true picture of what is taking place. The American Public Health Association, in its appraisal-form studies of the cities, is now bringing within its scope the participation of private practitioners in the preventive aspects of our great therapeutic problems. From these studies, again, we get many straws which point toward definite progress in the bringing together of the public health officer and the physician in dealing with this problem. Perhaps I am unduly optimistic, but I believe we shall see a steady and marked decline in the morbidity as well as mortality of the venereal diseases in the United States.

DR. J. GUY STROHM, Portland, Ore.: We think that syphilis is on the increase on the Pacific coast. Probably only about one fourth of all the cases are reported. It is difficult to teach practitioners to keep antiseptics off genital lesions until a dark field study can be made. Medical men should be urged to send all patients with genital lesions in for dark field examination, regardless of the appearance or the number of the lesions. Our state board of health is more than glad to make these examinations. Many patients suffer from lack of diagnosis and from inadequate treatment. They are given a few injections of neoarsphenamine and allowed to go on their way. They are given no instructions and no pamphlets to read on the subject, so consequently they drift away and are never cured. There is a wonderful opportunity on the

Pacific coast for workers in the field of preventive medicine as regards syphilis.

DR. W. R. JONES, Seattle: In Seattle the urologic society and health department together conduct a venereal clinic. The staff of five men is appointed from a list which the society considers as qualified. The quarantine physician, not a venereologist but a full-time health officer, examines all arrested for moral offenses. Syphilitic persons, if they have been previously reported by their physician, as the Washington law requires, are released. If not reported, even though under treatment, they are interned. Untreated syphilitic persons are treated until noninfectious, and then referred to their private physician or the outpatient clinic. The quarantine officer approves releases from the syphilis and gonorrhea departments. "Passing the buck" to him removes the chances of making the clinic a means for private gain. The male gonorrhea clinic is held three times a week. A urologist cares for male gonorrhea and complications, as primary syphilis and chancroids. The female gonorrhea clinic held thrice weekly is supervised by a gynecologist treating both outpatient and quarantined women. Most of the syphilis in the infectious stage is located in the gonorrhea clinics. The syphilis clinic is held three times weekly, where the urologist-in-chief cares for both sexes. In Seattle all food handlers, such as cooks and waitresses, and drivers of public conveyances, as taxicab drivers, must be examined by the health department. This includes Wassermann tests and gonorrhea slides. Diseased persons are referred to their private physician or, if indigent, to the city venereal clinics. Syphilitic persons under treatment are permitted to work. Many take treatment only to hold their jobs. The malaria clinic held once weekly is separate, and is in charge of an expert. Washington laws require all persons with venereal disease, whether clinic or private patients, to continue treatment or be locked up. Persons discontinuing treatment are returned by the health officer. The staff rotates. Male gonorrhea physicians change every three months; female gonorrhea physicians, every six months, and the urologist-in-chief, malaria syphilologists, and quarantine physicians, yearly. A social service worker interviews all but quarantined patients to eradicate the "moochers." Clinic physicians are paid and work unhandicapped by such factors as inability of the patient to pay or discontinuance of treatment at an inopportune time. The medical profession controls the clinic policies and determines whether the clientele are undesirable as private patients. This arrangement comes nearest to satisfying the divergent interests of the patient, the public, the private physician, and the health department.

DR. JOHN L. POMEROY, Los Angeles: Did I understand Dr. Jones to say that they are requiring all waitresses, bus drivers, and so forth to have a certificate? Does that include the girls at soda fountains and drug stores and other places of that kind?

DR. I. A. ABT, Chicago: Dr. Parran has referred to the prophylactic treatment of the expectant mother, which I desire to emphasize. The prophylactic treatment of syphilis in pregnant mothers is carried on in a striking way in Austria. In this new republic, which is intelligently administered under a socialistic form of government, the pregnant women are induced to visit the prenatal clinics during the early stage of pregnancy. At these visits they are given a general examination, including a Wassermann test. If they visit the clinics regularly they are given material assistance during the pregnancy and puerperal period. As a result of active prophylactic treatment in maternal syphilis, the number of cases of congenital syphilis in Vienna has materially diminished. Indeed, the clinicians, and more particularly the teachers at the various hospitals and clinics, are complaining about the scarcity of material for teaching congenital syphilis. Formerly they had this material in abundance and now it is difficult to secure cases of congenital syphilis for demonstration to the student classes. The best way to treat congenital syphilis is to prevent it by treating the pregnant mother. If this is done, eventually the infant morbidity and mortality will be diminished.

DR. L. D. FRICKS, Seattle: I understand that Dr. Parran advocates the postponement of treatment until an exact diagnosis has been made. Of course, I understand the reason for this from a purely professional standpoint and from the standpoint of the patient himself. But I am wondering whether, from a practical public health standpoint, it would not be wise to treat vigorously all cases in which there is a suspicion of active syphilitic infection. I have in mind the treatment of sailors at an outpatient office of the public health service where we do not have the time, equipment or personnel with which to make an exact diagnosis of every suspicious lesion. Our patients are in port today and gone tomorrow. Hence it is most important to render them noninfectious in the shortest possible time. What would be the objection, from a public health standpoint, to treating all suspicious lesions among this class of patient with arsenicals immediately, vigorously and without waiting for an exact diagnosis?

DR. E. T. HANLEY, Seattle: Management of the venereal disease problem requires, first, the legal authority to engage in appropriate activity; secondly, the ability to persuade others to action, and, thirdly, an effective educational campaign. Fortunately we have all three in Seattle. We have legal authority to compel infected persons either to take treatment or to go to jail, and to compel every one to submit to the Wassermann examination before becoming a food handler or before driving a public conveyance. Dr. Jones omitted mention of the fact that the Wassermann test is done as a routine in all patients cared for in either the Seattle City Hospital or the general and special clinics. This routine also includes all expectant mothers who may present themselves through any one of the eight child welfare clinics conducted in the poorer sections of the city. In this manner we have succeeded in obtaining more than 18,000 Wassermann examinations during the past nine months. I also have to meet the difficult problem of securing the cooperation of Seattle physicians in reporting cases of venereal disease under their care. Legally they can be forced to do so, but we prefer to use persuasion. I am glad to report that we now obtain practically 75 per cent cooperation in this matter. Patients are reported by number and when one fails to appear for treatment I send the police after him. Delinquent patients, male or female, thus have no alternative other than to accept treatment or go to jail. The transient girl constitutes another difficult problem in Seattle, and, without intending to cast any unfavorable reflection, I may say that this difficulty is augmented by the occasional presence of the fleet. Girls who follow the battleships from harbor to harbor are very hard to control. They are largely the products of broken homes and are usually uncouth in nature; they utilize various modes of transportation in traveling about. When they arrive in town they are generally without funds. The fleet happens to be in Seattle at the present time and our detention wards are seriously overcrowded. More of these girls are brought in by the police each day, and I do not know what we are going to do with them all. The influence of syphilis on infant mortality rates is another important matter. In studying the causes of the deaths that occur among Seattle infants, we have found that approximately 35 per cent are possibly due to this disease. I think that a similar situation probably prevails throughout the whole United States. It follows, therefore, that any effort we may make in getting under adequate treatment all expectant mothers who are infected with syphilis is going to assist materially in lowering our infant mortality rates.

DR. A. E. STUHT, Seattle: I want to ask what is done with the venereal conditions in the rural district. We do not have much trouble in the cities, but it is in the hamlets and little towns in the country that we have trouble, particularly in getting the cases reported. The statement was made that the Pacific coast has about a fourth of the venereal cases reported; I say that only 10 per cent are reported. And whose fault is it? The statistics sound fine, but are they true? That is what I want to know. I venture to say that, particularly in my own state, not more than 10 per cent are now reported. We have a health law written in our constitution, which helps the situation immensely. I do not want to arrest my fellow practitioners for not reporting venereal disease unless necessary. If every one will follow the law requiring the reporting of venereal disease, we can pat ourselves on the back and say that we are getting somewhere; but until we get a report of communicable diseases to our state health officer, our statistics are not worth much.

DR. THOMAS PARRAN, JR., Washington, D. C.: I appreciate the discussion that has been brought out, particularly the point Dr. Abt has emphasized concerning the results that may be obtained in the control of congenital syphilis. I think if there is any one phase of venereal disease control work in this country which has not been given proper attention, it is the problem of maternal and congenital syphilis. Dr. Frick asked whether it would not be permissible to give arsphenamine to a patient with a genital lesion before a definite diagnosis is made. This is never permissible. When that is done the physician blindfolds himself in handling the case. Worse than this, the patient throughout his life may be uncertain whether or not he has syphilis. I have been interested in the work which has been going on in Seattle from the standpoint of the cooperation of the medical society with the public health department. It has been a helpful experiment. I am opposed, however, to the examination of food handlers as a measure for the control of the venereal diseases; innocent infections from this source are negligible. It does not seem to be worth the cost as far as protection of patrons of restaurants is concerned, although from an esthetic standpoint it may be desirable. I particularly deplore the practice of giving "health certificates" to food handlers or others certifying as to their freedom from venereal disease, because for prostitutes it is the best method of advertising which they could hope to have. Methods for the control of venereal disease in rural districts have not been fully developed in most parts of the country. In fact, satisfactory methods have not been devised, although there have been a number of experiments in Alabama, Connecticut, Kentucky and a few other states. Practicing physicians have been selected by the state health departments who agreed to give treatment free or at a nominal cost to patients with venereal disease. The state supplies medicines and equipment and in some instances compensates the physician on a part salary or fee basis. The plan seems to be successful in Alabama. In other states comparatively few patients are treated by these physicians.

CAUSES OF CHANGES IN THE CIRCULATION OF THE FEET*

J. H. BACON, M.D.
PEORIA, ILL.

The general physiologic principles underlying the circulation should be fairly well understood and their normal limits appreciated as a necessary foundation for the study of those pathologic states in which changes in the circulation of the feet appear. Krogh has well said, "The problems of physiology are so complicated that, to put it tersely, one cannot expect to reason correctly from the facts for more than five minutes at a stretch," and I, having fifteen minutes at my disposal, admit a limited experience.

Why a special interest in the changes in the circulation of the feet? Are there sufficient differences from other parts of the body in the anatomy and physiology of the feet to justify any special consideration of their circulatory problems aside from those of a scientific curiosity? Even a crude comparison of the circulation of the hand and foot should answer the question. While, in a general way, the conditions in the hands approximate those of the feet, they are not complicated by weight bearing and locomotion, do not contend with such a height of venous blood, are not subjected to the pull of gravity for such long periods, are not so dependent on respiratory movements for blood and lymph return, and are not so influenced by different abdominal tensions such as obtain in pregnancy, being but slightly influenced by posture and entirely free from the effects of shoe wearing, interfering with sweat absorption and frequently constricting the blood supply for long periods.

In general, the circulation depends on a few factors, all of which are variable; namely, the intermittent force of the heart beat, the elasticity of a contractile set of closed tubes, the resistance of the wall of these tubes, a vasomotor control over the diameter of the lumen of the tubes, and the viscosity and volume of the blood. Closely associated but entirely separate is the lymph system with another closed set of tubes and, besides these, yet another system of which little is known, the open intercellular spaces.

It seems to me that, in the past, the larger members of this circulatory group have held the general interest to the detriment of less studied and understood capillaries of the lymph and vascular system. Only as we study the anatomy and physiology of the capillaries can we appreciate the cellular needs of the different tissues, for here are found the surfaces of the arterioles, multiplied by myriads, in the thin walls of the capillaries, giving osmosis time and place for its activities. Here one finds blood not simply a hydrostatic fluid but a tissue builder; blood with its warmth, water, salts and hormones; blood with its serum albumin, globulin and colloid, and blood with its leukocytes, lymphocytes and platelets, with its red blood cells, the answer to the tissues' call for oxygen, which has been rushed from the heart at a rate of from 8 to 12 inches a second, only to loiter through the capillaries and saunter back through the veins to the heart.

How thick are these capillary walls? Rowland working at night 50 feet under ground was able to put 16,000 lines on a linear inch of glass, and Michelson, taking the falling torch from the dying hand of Rowland, by refinement of technic placed 25,000 rulings on the inch, and this is the finest work the ingenuity of man has accomplished; yet the thickness of the capillary wall approximates it. On the permeability of these capillary walls depends cellular nutrition and life.

Krogh and his pupils in Copenhagen have shown that the tissues of the body are provided with a great excess of capillaries, many of which are held in reserve during ordinary activity. As a rule the muscle was shown to have seven times as many as were used during rest periods. This explains the source of the extra blood supply during strenuous muscular activity. They estimate that in the muscle of man there are 2,000 capillaries to the square millimeter, and a man's muscle weighs 50 Kg. The total length of all these tubes, put end to end, would reach two and a half times around the earth. They found that the capillary supply of the skin varied in different locations, and that the capillaries were smallest on the hands and feet, where they were subjected to great pressure, approximating 1,000 to the inch on the back of the hand.

The motor that drives the 10 or 11 pints of human blood with rhythmic action through this vast system of elastic tubes must have the highest efficiency to meet the varying demands of all the tissues, and the capacity to refuel between systoles. An average adult heart has an output of about 2 gallons a minute, and the pressure at which this is done is well known. The work of the heart translated into that of ordinary work may be expressed as the equivalent of lifting one-half pound 40 inches in height with each beat. Grossly the work of a day equals the shoveling of 26 tons of coal up a 3 foot incline.

* Read before the Section on Orthopedic Surgery at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 12, 1929.

The margin of error in such computations must be large; but, even after making adequate allowances by dividing one half, their magnitude is still impressive. A study of the effect of histamine is important, for it paralyzes the arterioles, reproducing many of the symptoms of shock.

Within the last decade an especially keen interest has developed in the sympathetic or autonomic nervous system. Stimulated by the work of Jonnesco, who was able to relieve a patient with angina pectoris from his agonizing attacks by the removal of the cervical sympathetic ganglions; and also by the work of Hunter, on the basis of which Royle reported amelioration of spastic paralyses of the leg by extirpation of the gray rami of the lumbar sympathetics, the attention of the medical profession has been focused on the possibility of relieving other chronic diseases, by surgical attack, whose etiology is not understood. From varied angles many anatomic and physiologic investigations have been undertaken and the results of these have added substantially to our knowledge, though it is as yet far from being complete.

Insufficient time has elapsed for the digestion of this wealth of laboratory and clinical material, but some deductions may now be drawn to aid in placing more definite limits to the clinical application of surgical procedures on the sympathetic system.

The sympathetic system is too complicated to permit any complete description, were I qualified; but possibly a brief statement may not be amiss here. All the vasoconstrictors, and possibly a few vasodilators, have their origin in this system. From the spinal cord, cells pass by medullated sheaths through the so-called white rami to the chains of ganglions on either side of the entire length of the vertebra. They leave the ganglions by way of the gray rami and pass through the spinal nerves to the periphery. There are a few prevertebral ganglions that supply the viscera. In this system are the nerves of secretion and those governing trophic changes. Stimulation of the central ends of spinal nerves or irritation of a part usually causes vasoconstriction of the arteries supplying that region. Little is known of the action of the vasodilators, except those that supply the salivary glands, heart and erectile tissues. The vasodilator center is not in tonic activity. The vasoconstrictor center, which seems to lie in the medulla, is in a state of tonic activity and holds the arteries, arterioles and, I believe, the capillaries also, in a condition of tone. Previous to the work of Krogh, who proved that the cells of Rouget lining the capillary walls were contractile, there was no definite proof that the capillaries played other than a passive rôle. The veins are supplied with vasoconstrictors. There is no known vasoconstrictor supply to the lymph channels; yet they are dilated by the action of histamine, which evidence is suggestive. The vasomotor system is so finely coordinated in health that the smallest need of any of the tissues, whatever its stage of activity, is speedily supplied with the proper amount of blood.

The sympathetic system is not under voluntary control; yet there are a few individuals who apparently seem to be able, in a measure at least, to control the rate of their heart beat. Heat and cold elicit a definite response. With all its protective mechanism against undue refrigeration, the amount of heat lost by the feet is surprising. McDougal says in part, "Since the accurate work of Stewart we can definitely state that the amount of heat lost by placing the feet in cold water is more than the body is able to generate at rest." The effectiveness of a hot foot bath in raising the body's temperature after a chill is also well known, giving more evidence of the large amount of blood passing through the feet, which, McLeod states, varies from 4.5 to 6.5 cc. per hundred grams of weight a minute. The clinical use of the contrast bath for increasing the activity of the vasomotors is common practice. The common use of applying artificial heat to the feet during rest has for its basis not entirely the fact that the feet have absorbed cold from the air and ground but that nature through protective vasoconstriction has limited the amount of transported heat. Muscular activity with its large demand quickly overcomes the pressor action of cold on the vasomotor system, and the combined effect of increased oxidation and increased blood flow warms the entire body as well as the feet.

The vasomotor system responds actively to the administration of foreign proteins, and it was by the clinical application of this fact that Adson was able to determine in advance the effectiveness of the removal of the gray rami and lumbar sympathetic ganglions in the treatment of Buerger's disease of the leg. If there was a marked rise in the temperature of the affected member over that of the normal leg after an injection of typhoid vaccine, there was demonstrated the presence of sufficient amount of active collateral circulation to justify the operation of sympathectomy in that individual. It has long been known that if the sympathetics to an artery were cut the lumen would dilate, and Leriche suggested that the adventitia be stripped from the entire circumference of a small portion of the wall of an artery to effect a dilatation for therapeutic purposes. More recently the injection of the wall of the artery with alcohol has been tried. Both of these procedures are followed by some dilatation of the arteries with coincidental warming of the limb. The result is evanescent, and these operations are being abandoned for the lumbar ramisection and sympathetic ganglionectomy. Both Royle and Adson have reported permanent cures of Reynaud's disease from a similar operation.

The emotions, such as fear, produce a decided effect on the vasomotor centers, resulting in constriction of the arterioles and rapid lowering of the temperature of the feet. This fact gives pith to the story of the American soldier in the last war who, on a cold morning, was vigorously jumping up and down. On being asked by a Frenchman whether he had cold feet, he sarcastically replied, "No sir, my feet are cold." Emotional shock may act so vigorously that the large abdominal vessels dilate and syncope develops with its attending blanching of the peripheral blood vessels. Other emotional states, as prolonged grief and worry and that clinical symptom complex of emotional instability called neurasthenia, with its anemia, asthenia and constipation, have elements of a vicious cycle. The lowered muscle tone and oxidation call for less food, which in turn produces more anemia and asthenia.

General infections frequently usher in their prodromes with a chill and cold feet, which may persist for hours after the temperature of the mouth shows a fever. As in bacterial infections so in protozoan, such as malaria, the blood supply of the feet is diminished during the chill.

The effect of certain drugs on the circulation is so well known as only to need mention in passing, and a few indirectly affect the feet by improving its circula-

tion, coincidentally relieving the edema, as digitalis in heart lesions with broken compensations.

The pressure within the lymph channels is very low and where it empties into the veins may be almost nil, being protected from backflow by a valve. There are comparatively few vasodilator nerves, apparently there being no need for them; for, as Lewis states, many of the tissue juices poured into the blood stream contain depressing substances, their depressive effect being compensated for by the tonic activity of the vasoconstrictors.

Prolonged posture in the upright position has the effect of tiring the vasomotors, as is evidenced by the feet being larger at the end of the day, involving both the venous and the lymphatic circulation. This swelling is much less marked if exercise is taken. I well recollect the ward rounds of an assistant professor, who was so very meticulous and thorough in his examination of his patients that we students standing at the bedside hardly moved for hours. He was affectionately called by some "Old Varicose Veins" and by others "Daddy Flat Feet." Some individuals apparently are born with a comparatively small vascular system.

It was found by Mende that edema could be produced in healthy feet or arms by a constricting cuff of rubber with a pressure of 90 mm. of mercury; when the total volume of the hand was measured, it had increased 120 cc. in thirty minutes. On release of the cuff it quickly lost 70 cc. of this amount, which accounted for the distentions of the large vessels; but 50 cc. remained in the shape of edema that took thirty minutes to disappear. A similar condition obtains in the leg with broken valves in the veins, the action of gravity on the long column of blood taking the place of the constricting cuff. With a constricting cuff of only 5 mm. pressure, some swelling took place but quickly disappeared on release of the cuff, suggesting the clinical effect of the use of garters.

In health, nature carries an abundance of colloids in the blood and they stabilize the osmotic pressure. Whenever the hydrostatic pressure or, in other words, the gravity pull on the long column of blood is greater than the osmotic pressure, trouble is brewing and there develops a pressure edema. This swelling explains in part why people sitting still for long periods become restless if their attention is not sufficiently held.

Osmosis, being a relatively small force, finds one of its greatest problems in the feet. Here the vasomotor system must be in excellent condition if the nutrition is maintained. Krogh has shown that to meet this demand even the serum albumins must have a special molecular weight according to the height of the individual, and the biologic forces of nature have attended to this. It is interesting to note that in only two animals, the elephant and the giraffe, is the heart found at a greater height from the ground than in man.

Temporary swellings from gravity pull alone may not immediately handicap the circulation seriously, but they point the way in which complications may develop when there are added the grave handicaps of broken compensation or salt retention of deficient kidney function. The lymph canals and tissue spaces of the feet as well as the vast vascular bed are intermittently squeezed in walking with the effect, as it were, of manipulating numerous syringes. If the venous blood is not returned quickly, not only will the effects of an anemia obtain but the development of varicosities will soon add a cyanotic tint to the picture of this vicious cycle.

Curiously, the peculiar anatomic construction of the elephant's foot, whose loose pad flattens out on pressure and elongates when lifted, leaves the foot free to rise from mud or mire, not holding the foot fast as obtains in other vertebrates with solid feet and thus preserving the species.

It is of interest in considering the pumping effect of the respiratory movements on the circulation of the leg to note that the pressure diminishes in the veins from the capillaries of the feet to the right auricle, where it is a minus pressure. The venous circulation is accomplished readily against the pull of gravity if the valves of the veins are intact. If the abdomen should have a high pressure, as in general peritonitis, there would be a marked embarrassment of circulation. This critical state is aggravated by the diminished excursions of the diaphragm.

Edema is a sign of lowered nutrition and lowered resistance, and lowered resistance creates a *situs delictu* for infection. That skin and tissue graft require a certain amount of pressure in their early state to prevent edema of the graft, which would in turn strangle the blood supply, was clearly shown by Blair, and his contentions have been well supported by clinical experience. Halstead states that "the edema of lymph stasis is hard, as opposed to the soft flabby edema of venous interference," and that "the massive edema has the added factor of infection." That infection may be present, lying dormant for long periods, is shown clinically by blooming forth in new vigor after operations performed on the apparently healed scars, such as from healed varicose ulcers of the leg and old war wounds.

The speed of the circulation depends much on the viscosity of the blood. In polycythemia the viscosity may be so high that, if associated with either a low pulse pressure or a moderate grade of arterial sclerosis, the circulation may be so impaired in the feet that gangrene will develop. May I suggest that this factor is frequently undervaluated.

I have not discussed specifically the circulatory changes of many clinical diseases usually presented before this section, but instead have given some of the general causes that may produce changes in the circulation of the feet. There are many other factors of interest and importance affecting the circulation, but the limitations of space permit the mention of only a few. Infection of the feet and the arthritides are possibly the most frequent pathologic causes of local fever with calor, tumor and rubor. Thrombosis has not been forgotten, nor have hemorrhage, the embolic crises, severe traumatism, tight bandages, circular casts or the ravages of syphilis. Physiologically, active exercise creates a rich blood supply, which if maintained over long periods will produce a larger foot. The growth of bone comes largely through the muscle and tendon attachments. My army experience, with the increased amount of walking, made it necessary for me to wear shoes two sizes larger, without proportionate increase of body weight. Disuse is followed by atrophy of bone and muscle through lessened circulation, even in the absence of local or systemic disease. All are familiar with the small atrophic anemic foot following severe infantile paralyses of childhood. There are irritating forces acting on the vasomotor center and manifesting themselves clinically as Rey-

naud's disease or erythromelalgia, of which we can as yet only surmise the etiology.

If the fulminating cause of thrombo-angiitis obliterans proves to be as Samuels, backed by a long experience, suggests, the excessive habit of smoking, then obviously physicians should advise the public of this danger.

There are underlying causes of high blood pressure, arterial sclerosis and chronic inflammatory processes of which we are now and shall continue to be ignorant until we have more thoroughly studied the results of the mutations of time and stress with the action of metabolic and bacterial toxins on the walls of the lymph and capillary bed. It must be in the changed texture of these delicate membranes which, in a single individual if spread out, would cover an area of more than a city block, that there lie hidden many of the secrets of osmosis which, if understood and could be prevented, would result in the elimination of many of the ills of mankind. With the aid of new discoveries and more powerful microscopes, and the study of the growth of tissue outside the body in artificial mediums, probably much of the anatomy and physiology of the circulation will be rewritten.

Sometimes an insight is obtained from a simple case that illumines the more complex. One cold clear morning I found a telephone lineman, the father of a patient of mine, at home, although he should for financial reasons have been at work. In response to a question, he stated that he had given up work on cold windy days as his right eyelid froze and that it required too much time and money to treat to justify the risk of exposure. On further questioning as to just why only the right eyelid suffered, he stated that his right eye was an artificial one. This taught me a much needed lesson: that the apparently little defects in the circulation of an organ often carry hidden a serious handicap. Here the increased conductivity of the artificial eye and the slight anemia produced by its holding pressure, with the lack of warmth of the eyeball itself, were sufficient to keep an otherwise healthy man from work on a cold day. It is frequently a serious problem to ascertain whether one would not be doing more for a patient by amputating a leg, mangled by accident, than by saving it with its impoverished blood supply.

That the integrity of the circulation is not interpreted to the clinical satisfaction of many is borne out by Allen and Brown, who state that while the diagnosis of circulatory diseases is easy in 90 per cent of the cases, the other 10 per cent show a large margin of error. That there is a feeling of a need among clinicians for more and definite knowledge is further attested by the number of clinical methods advanced for testing the efficiency of the circulation of the leg, of which I will mention a few, such as noting the color in the prone, raised and hanging positions; testing the reaction time following partial occlusion and total occlusion of the femoral artery; the use of Delbet's sign; observation of the hyperemic reaction after pressure, the temperature being taken by tactile sense, thermometer, thermocouple and galvanometer; the use of the calorimeter of Stewart, the viscometer, and the oscillometer of Pachon; the noting of the blood pressure, capillary blood pressure and the microscopic anatomy at the nail margin; the use of Quénu and Muret's test for determining bleeding time; the injection of sodium iodide into the lumen followed by the making of a roentgenogram of the limb; the use of salt injection in forming wheals, with notation of absorption time and, more recently, the injection of 1:1,000 solution of histamine acid phosphate intradermally, with noting of the time, color and size of the reaction; and, finally, the employment of a whole series of tests developed by Matas, who has done much to instruct us in appreciating the necessity of making a complete examination of the circulation before attempting operative procedures.

ABSTRACT OF DISCUSSION

DR. B. T. HORTON, Rochester, Minn.: So far as I know, changes in the skin temperature of the feet are always dependent on alterations in the blood flow. That seems obvious, for with an increased blood flow to the foot there is a corresponding increase in the skin temperature, and thus an increase in the actual heat elimination. With a decreased blood flow there is a drop in the normal skin temperature, with a decreased elimination of heat. Changes in the vascular tree, either of a functional or of an organic nature, account for the various clinical pictures which are encountered in peripheral vascular diseases. In the functional group we have (1) the vasoconstricting type, accompanied by either the multiple phase color reaction (Raynaud's disease), or the one phase color reaction (acrocyanosis, dead finger, local syncope), and (2) the vasodilating type, of which primary erythromelalgia is an example. In both conditions there are changes in skin temperature and heat elimination. In the former, the skin temperature of the extremity decreases, with a corresponding decrease in heat elimination, while in the latter there is an actual rise above normal in the skin temperature with an increased heat elimination. In the organic group there are two main subdivisions: thrombo-agiitis obliterans and arteriosclerotic disease. It is interesting to note that the skin temperature is decreased in all of these conditions except erythromelalgia (vasodilating type). Color changes are frequently associated with these disturbances. The multiple phase color reaction is always present in Raynaud's disease and in approximately 25 per cent of the cases of occlusive vascular disease. Such changes are very common in cases of thrombo-angiitis obliterans. In the organic group in uncompensated cases, blanching of the extremity occurs on elevation, and rubor occurs if the extremity is placed in a dependent position. It is important to differentiate between a red cold foot and a red warm foot. The former condition is due to circulatory insufficiency; the latter usually to some local infection. If surgical intervention, such as trimming an ingrown toe nail, is instituted in the case of a red cold foot, gangrene may set in. I have seen this follow minor surgical procedures many times.

DR. J. H. BACON, Peoria, Ill.: One reason why I am interested in this subject is that when I was a youngster I worked on a farm. When the weather began to get cool in the fall I used to go out to the well and put my hands in a bucket of cold water. My hand swelled up and became red and my fingers became so stiff that I could not move them. In that way I got out of milking the cow.

Special Examinations and Diagnosis.—Whereas a careful history and physical examination are most important in making a correct diagnosis, each patient, when consulting a physician, is also entitled to certain laboratory examinations, especially an examination of the urine, and, whenever indicated, other special examinations, such as blood examination, roentgen-ray examinations of the stomach and intestine, chemical examination of the stomach contents, and many others too numerous to mention. An examination of the urine should be performed in every case, and it is absolutely imperative before a general anesthetic is given. The failure to recognize an unsuspected case of diabetes may cause the death of the patient following the administration of an ether anesthetic. The physician in protection to both the patient and himself should insist upon a roentgenogram being made in all suspected fractures. Many law suits are prevented by the observance of this rule.—Ochsner, Alton: The Physician and His Patient: Their Reciprocal Relations, *New Orleans M. & S. J.*, November, 1929.

TUBERCULOSIS OF INSIDIOUS ONSET AND OF ACUTE ONSET

NECESSITY OF DIFFERENT DIAGNOSTIC CRITERIA *

F. M. POTTENGER, M.D.
MONROVIA, CALIF.

While tuberculosis recently has been forced down to the fifth place in the mortality records for the United States, it still holds first rank as a cause of death during the most productive period of life, from 15 to 45 years, and so remains of such importance as to demand the most careful consideration of medical men.

NECESSITY OF EARLY TREATMENT

The mortality rate is the least important problem of the disease from the racial standpoint but the most important from the standpoint of the individual. Taking its greatest toll between the ages of 15 and 45, tuberculosis furnishes social, domestic and economic problems of tremendous importance. It causes, on an average, an illness of three or four years for each patient who dies of the disease. The effect of such a chronic illness on the ambition, the efficiency, the business and professional career, the economic attainments, and the domestic and social life of the tuberculous individual, and on those who are associated with and dependent on him, even though he should secure an arrest of his disease, is sufficient to make any one stop and ponder, and wonder what he would do were he the one affected.

The three great problems so far as the sick individual is concerned are: (1) how to produce healing of his disease; (2) how to guarantee to him physical efficiency for the future, and (3) how to reduce the time and cost of illness. So far as the race is concerned, the problem is how to prevent the disease and thus relieve society from its blighting influence on social, domestic and economic happiness. The importance of these problems is self-evident.

We have learned much about preventing infection and are probably even more successful in decreasing the number of people who develop clinical disease after infection has taken place. We have proved that tuberculosis is curable. We have shown that to be curable with any degree of certainty it must be treated when the lesion is small. Treating it at this time not only insures to the patient the greatest chances of recovery and the highest degree of physical efficiency thereafter, but produces the result more quickly and with the least financial outlay. Our greatest problem as clinicians who are attempting to render the best service to patients suffering from clinical tuberculosis is not only to know how to treat the disease effectively but to be able to apply curative measures when a cure can be attained most readily. The real problem is how to secure prompt treatment when the disease presents itself.

Early diagnosis and immediate adequate treatment are two essentials for the successful combating of clinical tuberculosis. Therefore, it is necessary that we learn to recognize the signs of its early appearance.

INSIDIOUS VERSUS ACUTE ONSET

We, as clinicians, have been taught to expect tuberculosis to make its appearance in an insidious manner. It can come on acutely, too, and does in a much larger proportion of instances than we have been thinking; in fact, not infrequently the disease is first brought to the patient's attention by an acute toxic syndrome accompanied by cough and expectoration. In many instances which are considered insidious the acute phase has been overlooked. Frequently it lasts only a few days and then disappears, the patient soon recovering his normal state of health and maintaining it for a period of time. In many instances, too, which seem to be acute, a previous insidious phase has been unrecognized.

In order to make the matter of onset clear, it is necessary to understand the nature of tuberculous infection and the body's immunity response.

This discussion will be confined to chronic tuberculosis. Therefore, the presence will be assumed of a previous infection which has resulted in the establishment of a specific defense on the part of the host with the acquirement of a relative immunity. This specific defense has, as its most prominent expression, "allergy." When allergy is present the host responds with an inflammatory reaction toward further infections with tubercle bacilli, or further inoculations of tuberculoprotein. This, in turn, determines the symptomatology and the course of the future disease process. A mild allergic reaction is accompanied by slight tissue reaction and few or no recognizable symptoms, while a severe allergic reaction is accompanied by marked tissue reaction and severe symptoms.

Tuberculo-allergy is produced by the hypersensitivity of the cells which has been conferred on them by previous infection. This tuberculo-allergy being a variable, quantitatively, depends among other things on the character of preceding infections—number, size and frequency; the nature of the host's response; the time that has elapsed between the preceding and the present infection, and the amount of tuberculoprotein which has been and now is set free to play on the hypersensitized cells. If we knew how to measure these factors we might predict with some degree of accuracy what the nature of the onset, what the symptoms, and what the after-course of any particular infection would be. But since all of these factors are variables, we can recognize only that the onset and course of different tuberculous infections must of necessity be different. Some will be insidious, others acute.

Since tuberculosis makes its presence known by disturbances in the normal physiologic functions of the host, whenever symptoms are present, whether mild or severe, they must be taken as evidence not of a tuberculous infection but of a tuberculous disease. They show that the body of the host in combating the bacilli is doing so at the expense of the normal function of the tissues and organs. This we know from our experience in experimental tuberculosis, because no symptoms appear simply as a result of infection. The animal is just as well for a time after bacilli, even in quite large numbers, have entered his tissues for the first time as he was before, so far as we are able to judge from outward signs and from our methods of observation. Only after the immunity mechanism has been called into play does the animal react with evidence of illness. When this mechanism has once been called into play, however, the disease may manifest itself following comparatively small reinoculations of either tubercle bacilli or bacillary protein, or following larger ones; and all of its manifestation, its onset, its symptomatology and its after-course will differ accordingly.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

IMPORTANCE OF ALLERGY

In order to understand tuberculosis it is essential to know the part played by allergy in the production of symptoms. The allergic inflammatory reaction may show itself during the course of tuberculosis in any and all tissues surrounding foci containing viable tubercle bacilli. This may result in anything from a simple hyperemia to an exudation of serum, cells and fibrin in the tissues and air spaces—a true pneumonic process; or, it may be, caseation with or without loss of tissue. It also shows as a response to general cell hypersensitiveness to tuberculoprotein, which is the basis of local tuberculin reactions in tissues distant from tuberculous foci, such as the skin. This specific inflammatory reaction was first noted and described by Koch and later called "allergic" by Pirquet.

Allergy is so vital a part of every reaction that one cannot think of clinical tuberculosis except in terms of it. It is due to it that symptoms appear, that pathologic changes occur, and that variations in the course of the disease manifest themselves. Depending on its presence or absence, and on its severity, healing occurs or death takes place.

It is well to know how the allergic inflammatory reaction produces symptoms and signs of tuberculosis, for by understanding this we shall be enabled to explain the different methods of onset of the disease. The more marked the reaction, the more severe the symptoms and the easier the infection to diagnose, as may be readily understood. The products of inflammation—bacillary, pulmonary and exudative—cause the toxic symptoms. The inflammation of the tissues injures afferent nerves and produces reflex disturbances, causes local changes which are responsible for such symptoms as hemoptysis, pleurisy and sputum and produces differences in density of the pulmonary tissues which are determined by palpation and percussion, and altered auscultatory sounds and pulmonary râles. It is the same allergic reaction, too, which causes the changes in the pulmonary parenchyma that produce the roentgen shadows and are responsible for the breaking down of foci of disease with the appearance of bacilli in the sputum. This allergic reaction, then, must be understood if one will recognize tuberculosis, for it is the cause of the phenomena on which recognition depends.

In order to make an early diagnosis of tuberculosis it is necessary to be able to recognize the earliest manifestations of allergy that result from any given active infection. This, unfortunately, is difficult to do when the reaction is slight, whether because of a low specific sensitiveness of the body cells or because of mild stimulation on account of a small reinoculating dose of bacilli, and consequently a small quantity of tuberculoprotein.

IMMUNITY RESPONSE OF THE HOST TO INFECTION

Every infectious disease—tuberculosis, measles, typhoid, meningitis or diphtheria—calls forth an immunity response on the part of the host. This response differs according to the nature and numbers of bacteria which produce the infection, the seat of inoculation and the ability of the host to respond. For a typical disease picture to appear, one assumes that the infection must be produced by a quantity of bacteria sufficient to upset the normal physiologic equilibrium of the host while he is meeting their inroads by marshaling his immunizing forces. There is no doubt, however, that many infections take place which fall short of producing a definite disease picture and yet raise the specific resistance of the host and even create an efficient immunity to further infection by the same microorganism without the host's being aware of their presence. This probably accounts for the many instances in which several children in a family are exposed to measles, whooping-cough or other infections, and part of them become ill while the others do not. Such children often prove resistant to the disease ever after, although exposed by contact. Sometimes, however, such infection only raises resistance relatively, and later the child develops the disease, which has a more or less typical course. The same is true in tuberculosis plus the further important fact that, when once a person is infected with moderately large doses of tubercle bacilli, viable bacilli are nearly always thereafter present in the tissues of the host to be a source of future reinoculation.

An immunity response is associated in our minds with the idea of protection; yet, while the acute reaction lasts, it has about it many factors that are distinctly inimical to the host. The host cannot put up an adequate defense against a severe infection without some derangement of the physiologic mechanism. The toxins render many of the neurocellular mechanisms of the body unstable and may even completely disrupt the harmonious workings of many systems through the accompanying malaise, loss of vigor, elevation of temperature, quickened pulse rate, lessened appetite, impaired digestion and resultant loss of weight, leukocytosis and anemia, all of which exert, for the time being at least, a decidedly harmful influence on the patient, even though immunity may result from the reaction. If localized in some particular organ or tissue, the infection may produce such an inflammatory reaction as to disturb other organs reflexly, and locally produce harmful effects.

Acute and chronic infections differ greatly in the competence of the immunity response which they call forth. Acute infections as a rule consist of one infection, one immunity response, and a competent and usually lasting resistance to further infection, or a failure to establish immunity, and death. Chronic infections, on the other hand, consist of repeated reinoculations and repeated immunity responses, without ever producing more than a relative immunity. In each instance the same episode on the part of the host, qualitatively, is called forth, though different episodes differ quantitatively, according to the inoculating dosage and the reacting capacity of the host at the time when the infection takes place.

Since tuberculous infection fails to produce a competent and lasting immunity because of the inability of the host to rid himself of viable bacilli, the disease becomes chronic and during its course produces a succession of reinoculations of bacilli and bacillary protein, each of which is followed by an immunity reaction, unrecognized if very slight, manifest if more marked. We can therefore understand that the course of tuberculosis must be a succession of variable responses on the part of the host, and must have a variable course. Uniformity of onset, symptoms and course could take place only if the reinoculating dosage of bacilli were always the same in numbers and virulence and the sensitivity of the cells of the host to tuberculoprotein as well as his nonspecific resistance were always the same.

There seem to be three variables on the part of the infecting tubercle bacilli around which differences in their reaction may be grouped: (1) numbers; (2) virulence, and (3) the tissues in which they are inoculated.

The tissues in which they are inoculated show differences in different individuals and also differences in different organs in the same individual.

Constitutionalists point out the difference in tissues, in their reaction and in their resistance to various diseases. Clinicians have noted the difference in reaction of different individuals who possess different endocrine dominances. Sympathicotonia, parasympathicotonia and the various combinations of these seen in practice provide a basis for different physiologic body responses. The same is true of the difference in psychic and emotional stability. When it is recalled that reaction depends in its ultimate analysis on the cells' giving off and taking on of substances (electrolytes), it can readily be seen how those various factors which alter the cellular background of the host provide different conditions at different times for stimuli to act on; and it is only too evident that individuals with different emotional, nervous and psychic equilibria provide different degrees of stimulation for the cells under similar conditions.

If these facts are applied to tuberculosis, one can understand that there must be differences in the manner of onset and differences in the clinical course which are presented throughout the disease; and it is further apparent how diagnostic criteria must differ in order to detect these differences.

RECOGNITION OF TUBERCULOSIS OF INSIDIOUS ONSET BY MILD ALLERGIC PHENOMENA

The onset of tuberculosis is insidious in those instances in which the numbers of bacilli engaged in the infection are too large to be rendered harmless or destroyed by the particular individual and yet not large enough to play heavily on his specific protective mechanism and cause a marked immunity response. Needless to say there are many factors connected with this mild reaction or failure of reaction which we do not understand; but we do know that any marked immunity response such as is present in all frank bacterial diseases is absent. The cause may be on the part of either the invading bacilli or the resisting host, or both. In tuberculosis one speaks only of a relative immunity or relative resistance, because absolute immunity is never attained. Such apparently mild infections, however, cannot be disregarded because they are often the antecedents of serious disease.

It can readily be seen that the allergic reaction caused by a relatively mild infection would be slight and probably often unrecognizable. After repeated infections, however, unless the bacilli are rendered innocuous they continue to multiply and spread and produce greater quantities of tuberculoprotein in the ever-increasing number of active foci. This gains access to the circulation and stimulates and increases the immunity mechanism to an ever higher efficiency. The cells become more hypersensitive and sooner or later enough bacillary products are present to cause definite symptoms of acute illness, as they come in contact with the highly sensitized cells.

The symptoms in these patients with insidious onset are variable. The allergic inflammatory reaction, at least early in the course, is slight. Toxins may gain access to the circulation in sufficient quantities to produce a low-grade toxemia in susceptible individuals. A slight elevation of temperature, tiredness, nerve instability and loss of usual vigor, of appetite and of a few pounds may occur. A slight hack or no cough may be noticed. It is fortunate when such patients have a pleural involvement or an hemoptysis, for then the combination of all symptoms present makes the diagnosis definite, while without these local symptoms tuberculosis might remain unsuspected.

There is not likely to be sputum. If present, bacilli must not be expected to be found. The roentgenogram at first may show nothing that is recognized because of the mildness of the exudation. The negative information which it gives, because of the absence of a marked exudative process, may be wrong; for such a process may be brought out immediately by an allergic reaction in case of reinoculation of either bacilli or bacillary protein. This procedure should be followed in case of doubt. Physical examination is for the most part negative. In some of these cases, lagging of the side and reflex muscle tension will cause the examiner to suspect the lung as the seat of the lesion if he knows how to detect them. A marked reaction to tuberculin adds positive evidence by showing the presence of tuberculous infection, and probably by showing that the immunity mechanism is at the time or has recently been stimulated to activity.

I have followed many such cases to find the symptoms become more apparent later. If patients with such symptoms are given instructions how to increase their vigor and save their strength, they will often improve without a definite diagnosis having been made. Even if allowed to go on in their usual way, some will get well; but others will suffer further reinoculations, larger and more frequent, until the disease manifests itself by calling out an acute immunity response with a definite toxic syndrome probably accompanied by cough and bacillus-bearing sputum. A safe rule is to keep all such patients under close observation until they are restored to normal health.

This insidious picture may be found in the psychically and nervously stable and the physically strong, but is seen most often in those who possess unstable psychic, nerve and endocrine balance. Such individuals show symptoms to stimuli which would not be noticed by the more stable, and hence present themselves for examination, at times, when the lesion is small and the reaction slight. These are patients in whom diagnosis is most difficult, because the symptoms of physiologic instability, from which they normally suffer, are identical with those of mild tuberculous toxemia, even to slight elevation of temperature. This is the type, however, in which a correct diagnosis is most important. The reflex and local symptoms, when present in these patients, are most helpful in determining the diagnosis. It is extremely important to search for them and not allow a severe disease to develop, for when it does, because of the lowered physiologic plane on which these patients live, they do not overcome extensive lesions as readily as the more robust.

No definite course is followed after the onset of the disease in these insidious cases. A frank disease may develop in a few weeks' time; or there may be an arrest of the symptoms for several months, a year or several years, or definite healing may occur. This throws on the clinician a diagnostic problem that carries with it great responsibility. If the diagnosis cannot be made at once, the patient must be kept under observation until all doubt has been cleared away.

RECOGNITION OF TUBERCULOSIS OF ACUTE ONSET BY MARKED ALLERGIC PHENOMENA

When tuberculosis manifests itself with an acute onset, for the safety of the patient it should always be recognized at once, for the resultant disease is the product of a relatively large reinoculation. Accordingly the symptoms are more severe and the resultant lesion is apt to be more extensive and more serious to the host than is the case when the reinoculation is caused by small numbers of bacilli.

The acute onset may follow other acute infections, such as measles, influenza or pneumonia, or other stresses which lower the patient's resistance for the time. In such instances we assume that the bacilli responsible for the infection were previously embedded in the tissues, and probably living in an apparently harmless state until, as a result of some change, either in the tissues in the way of lowered resistance or in the bacilli in the way of increased pathogenicity, conditions favorable to growth and multiplication appeared.

In such instances, two things may happen. If the bacilli become activated and the immunity with its cellular hypersensitivity is not greatly depressed, a marked allergic reaction with frank symptoms may occur within a few hours or days. If, on the other hand, the immunity is greatly depressed, as it is in many such instances, the bacilli may become pathogenic and be implanted widely in new tissues before the host reacts with the usual syndromes of toxic, reflex and local phenomena. Again we can conceive of an individual who has developed an immunity by previous infection becoming reinfected with large quantities of bacilli from without and reacting with an acute immunity response. In the discussion of this point, however, it must be borne in mind that immunized cells offer a barrier both to the ready entrance and to the ready spread of bacilli within the body. From my study of clinical tuberculosis I assume that this barrier can usually be depended on to be sufficient to protect most adults from becoming infected from without, at least when in good health.

The sudden appearance of symptoms, whether due to the acute termination of an insidious onset or to the sudden development of an infection produced by large numbers of bacilli, produces the same symptoms—the toxic syndrome, with the usual increased temperature, rapid pulse, malaise, nerve instability, loss of strength, lack of appetite and poor digestion, with cough, spasticity of the muscles of the shoulder girdle, lagging of the side, and sputum, quite often containing bacilli. Such an episode, so far as the toxic group of symptoms is concerned, cannot be differentiated from any other acute infection, but the cough and expectoration should direct attention to the lungs.

The examiner should never fail to submit any expectoration accompanied by such symptoms to examination and repeated examinations, if necessary, for Koch's bacillus. He will find bacilli present in a surprisingly large number of instances, if he uses twenty-four or forty-eight hour samples and employs one of the concentration methods in the examination.

Sometimes this early acute onset is followed by a prolonged quiescence; at other times, by a periodic repetition of the same phenomena. The patient expresses himself as having a cold or repeated colds, but notes that unlike common colds they lower his resistance and produce a prolonged disturbance in his feeling of well being. Sometimes, on account of the marked symptoms on the part of the gastro-intestinal tract which often mark the toxic syndrome, he states that he is "bilious." There is little difficulty in diagnosing tuberculosis with acute onset, provided one bears in mind that the immunity reaction is very often followed by a period of quiescence during which most of the toxic symptoms may disappear, either for a time or permanently. However, reflex symptoms practically always remain, and some of the local symptoms may now and then manifest themselves. Care in obtaining and analyzing the patient's clinical symptoms will nearly always make the diagnosis clear in this type of onset, because the lesion is relatively gross. It is not necessary to rely so much on symptoms in this type as it is in that of insidious onset, for here other aids to diagnosis are usually present, but symptoms alone are usually sufficient for making the diagnosis.

Patients with this type of onset show muscle tension and lagging of the side to best advantage. An exudative process of sufficient magnitude to be determined by the roentgen ray is usually present. During the acuteness of the attack, localized râles are usually to be found on auscultation and bacilli are quite often present in the sputum. Hemoptysis and pleurisy are frequently present. There should be no difficulty in making a diagnosis in the presence of such symptoms, if only one bears tuberculosis in mind.

ABSTRACT OF DISCUSSION

DR. M. A. WEEMS, East Columbia, Texas: Does Dr. Pottenger consider that all cases of nontraumatic pleurisy are tuberculosis?

DR. ROBERT A. PEERS, Colfax, Calif.: I want to emphasize the things Dr. Pottenger has emphasized; that is, the taking of a history, the examination of sputum, and the making of roentgenograms. Getting a history takes time, but if one expects to make a diagnosis in these cases, particularly in the early stages, one must expect to spend a lot of time doing it. A properly taken history is, I think, the greatest single thing in enabling us to make a diagnosis, and it is surprising how frequently the history is overlooked. Of course, it goes without saying that one should examine the sputum and make a roentgenogram. I emphasize those things because they are so frequently omitted. Dr. Pottenger mentioned that these symptoms of toxemia are things that individually one sees in many other diseases, but when one takes them collectively and when there are a number of them in the same individual, they are very suggestive and demand close inspection, a good history and examination. Such a sign as easy fatigability is something one finds in many diseases, and by itself means little. Rapid pulse, loss of weight, rise in temperature, coughing and so on will be observed separately in many other diseases, but when the entire combination is present they are very suggestive.

DR. KENDALL EMERSON, New York: I should like to ask Dr. Pottenger whether he has shown us all the instances of the acute type of tuberculosis he is following, or whether he could cite other causes for arousing this sudden operation.

DR. V. S. ISON, Baker, Ore.: I have a patient now in a hospital who has tuberculosis of the hip. This patient is a young man. He has a short limb never used in walking on account of shortness. I have often wondered why they did not amputate that limb when he first started to have tuberculosis of the bone above the ankle in 1913. Now it has extended up to the pelvis and it is full of pus, yet his lungs are not infected. Why is he immune to the infection in the lungs when he has it in such volume in the bones and in the pelvis? Of course, the boy is beyond recovery. I have tried to get him into the tuberculosis hospitals but they will not take him because it is a bone case. No hospital in Oregon

wants the case. He has had an application in the tuberculosis hospital in Oregon for a year or two, but he cannot get in on account of having tuberculosis of the bone. They give tuberculosis of the lung preference.

DR. E. A. PIERCE, Portland, Ore.: I should like to ask Dr. Pottenger whether in any of these cases which have been activated by possible pneumonia and possible influenzal conditions, he has discovered any pulmonary abscesses in connection with the shreds of tissue accompanying the finding of the tubercle bacillus.

DR. O. A. NELSON, Seattle: I want to ask Dr. Pottenger whether he has found more tuberculosis following the so-called influenza epidemic of last fall in comparison with the epidemic of 1918.

DR. F. M. POTTENGER, Monrovia, Calif.: As to whether nontraumatic pleurisy is not always of tuberculous origin, it may be said that pleurisy frequently follows influenza and pneumonia. There is also at times pleurisy following infections elsewhere, particularly in the abdomen. Pleurisy that comes on and cannot be accounted for in other ways, however, is most likely tuberculous. Dry pleurisy is of tuberculous origin more often than pleurisy with effusion. Tuberculous disease frequently follows influenza. The same is true with other stresses, such as measles and whooping cough in children, pneumonia, pregnancy, living under unhygienic conditions and overwork. We do not know exactly how stresses work to activate old tuberculous lesions, but that they do is generally accepted. In tuberculosis of the bones and joints, amputation is not carried on very commonly now, unless as an economic measure. Time and patience will usually bring a healing. Tuberculosis, no matter where situated, has a tendency to heal. Tuberculosis of the larynx, unless it interferes with eating, will nearly always heal. Tuberculosis of the bowel heals much oftener than we have thought, and even tuberculosis of the kidney will now and then become at least symptomless. Tuberculosis of the lung is not a surgical disease, although lung surgery is used quite a good deal today in its treatment. Surgery is only a measure, however, for meeting situations and complications which arise because the disease has become advanced. In practically every early case of tuberculosis the patient can get well without surgical intervention. What we need is early diagnosis and immediate treatment. When there is a definite organ tuberculosis, whether of the bone, joint or kidney, as a rule the patient develops sufficient immunity to protect him from infections of other organs, although now and then infections of multiple organs will take place. As a rule, however, these extensions do not take place until the immunity has been depressed and the disease, on account of it, is extending. Pulmonary abscess following influenza is not uncommon. There are a large number of cases of pulmonary abscess which were activated by the epidemics of influenza of 1918 and 1928.

The Physiology of the Foot in Standing and Walking.—If the foot were jointless except for the tibio-astragalus joint its physiology would be much simpler than it is with no less than thirty-eight articulations. The best standing position is where the two feet form a quadrilateral figure; that is, where the centers of the balls of the feet and the centers of the heels form the corners of a square. To bring the transverse plane containing the center of gravity of the body over the strongest part of the bony structure and to keep it there with the least muscular exertion, the foot should be placed at about a right angle with the leg. A man weighing 150 pounds and standing in low-heeled shoes may be said to transmit 100 pounds through the heels and 50 pounds through the forefoot. In walking the progression of the step is developed from the heel to the sole in such a manner that the heel touches the ground first whereby in most cases the sole forms an angle of 35 to 45 degrees with the ground. It will be found that the outer border of the heel touches first. Then the outer border of the sole follows, the step being further developed toward the inner surface through the adjustment of the fanlike spreading of the metatarsal bones toward the second joint of the great toe. From here on to the end of the great toe the step is completed and the foot again begins its forward pendulum movement.—Toepel, Theodore: The Sesamoid Bones: Important Factors in Deformities of the First Metatarsophalangeal Joint, *J. M. A. Georgia*, Nov., 1929.

CHRONIC INFLAMMATORY DISEASE OF THE BILIARY TRACT

FACTORS INFLUENCING THE CHOICE OF TREATMENT, WITH REVIEW OF END-RESULTS IN FIVE HUNDRED AND ELEVEN CASES *

R. H. McDONALD, M.B.
CLEVELAND

There would seem to be abundant reason to believe that the treatment of chronic inflammatory lesions of the biliary tract has in general lagged behind the treatment of other gastro-intestinal lesions. The guiding principles which determine the best type of treatment in these cases seem poorly standardized and are not clearly defined. This paper offers the results of a personal attempt to analyze the results of a follow-up study of more than 500 cases of diseases of the biliary tract which have been observed at the Cleveland Clinic during the years 1921 to 1927 inclusive. This study was made in the hope that some general rules might be formulated which would indicate (1) the best method of treatment in each case, and (2) the differentiation of cases into surgical and medical groups.

The cases in this series include only those in which the diagnosis has been well substantiated either by careful study in the department of medicine or by the demonstration of some gross pathologic condition of the biliary tract of the chronic inflammatory type at operation. Moreover, only cases have been included in which a good follow-up has been possible; in a great many of these cases personal examinations have been made and the follow-up has been by questionnaire. The interval elapsing between the period of treatment and the time of the report in all cases has been at least six months, and on an average has been from three to four years. This has been a necessary precaution as it has been noted frequently that the period of rest, restricted diet, careful attention to the bodily functions, and freedom from the various irritations of everyday life incident to the period of medical treatment or of surgical procedure, give the patient a sense of well being that does not survive the strain of his resumption of normal activity. Again, the onset of other conditions after treatment may cause symptoms which the patient is inclined to attribute to the old trouble and which he allows to influence his judgment of the result of treatment. As far as possible these personal factors have been eliminated from this series and the results have been reduced to statistical form so far as it seemed practicable to reduce such a complexity of data to definite figures. These are presented with the knowledge that they suggest only general tendencies. The conclusions drawn are also of general character and are subject to the same inaccuracies, so far as the individual case is concerned, as are most medical statistics.

COMPARISON OF RESULTS OF MEDICAL AND SURGICAL TREATMENT

The series includes 511 cases, of which 235 were treated surgically and 276 medically (table 1). In the great majority of the surgical cases some medical care was given either before or after operation, but for the sake of differentiation all cases in which some form of surgical operation has been performed are included in the surgical group. Cholecystectomy was performed

---

* From the Cleveland Clinic.

in the majority of cases. Cholecystostomy and partial cholecystectomy were performed in a few cases. The medical cases include those in which no surgical operation has been performed here or elsewhere. In the main, treatment has consisted of a generally restricted diet of low fat content, the removal of obvious focal infection and careful attention to elimination. Drug therapy has consisted chiefly in the use of an alkaline powder after meals and frequently of small doses of belladonna. Preparations of bile salts and pancreatic enzymes were also employed in several cases. In a small number nonsurgical biliary drainage was instituted, after the method of Lyons.

According to the results the patients have been classified into three groups: "well," "improved" and "no better." The first group includes those patients who have been freed completely from symptoms; the second, those who have been benefited but in whom the symptoms still persist, and the last, those who have received no benefit from the procedure. It is probable that the last group is proportionately larger than it should be on account of the human tendency to forget benefits received but to retain a vivid memory of failure to receive benefit.

In the surgical group, 173 patients expressed themselves as being well or improved and sixty-two as being no better, this combination of the first two groups amounting to 73.6 per cent of the total number of cases. The results in the two sexes are nearly the same, 71.4 per cent of the males and 74.4 per cent of the females showing improvement. The age at which treatment was given made very little difference, the percentage of improvement for any decade after the third being very constant.

Among the medically treated cases only 67.8 per cent showed improvement, 69.7 per cent of the males and 61.5 per cent of the females. As in the surgical group the age of the patient seems to make but little difference as far as the results of treatment are concerned.

It must, of course, be borne in mind that the surgical cases are generally so treated because of some local evidences of gallbladder disease and that therefore they represent a selected group. These patients have also received, almost without exception, some medical treatment. The medical group includes the rest of the cases, a rather less definite group with less well defined pathologic conditions.

TABLE 1.—*A Comparison of the Results of Medical and Surgical Treatment of Disease of the Biliary Tract*

		Surgical						Medical						
Decade	Sex *	Well	Improved	No Better	Total	Total Improved	% Improved	Well	Improved	No Better	Total	Total Improved	% Improved	Total Cases
10-19	♂	0	0	0	0	0	0.0	1	1	0	2	2	100.0	2
	♀	0	0	0	0	0	0.0	0	0	0	0	0	0.0	0
20-29	♂	1	1	0	2	2	100.0	1	1	5	7	2	28.5	9
	♀	13	1	2	16	14	87.5	10	4	3	17	14	82.3	33
30-39	♂	7	3	3	13	10	77.7	6	5	2	13	11	84.6	26
	♀	23	8	13	44	31	70.4	15	14	23	52	29	55.7	96
40-49	♂	6	2	6	14	8	57.1	6	11	9	26	17	65.3	40
	♀	31	8	12	51	39	76.4	17	19	19	55	36	65.4	106
50-59	♂	17	4	7	28	21	75.0	11	4	4	19	15	78.9	47
	♀	20	9	12	41	29	70.7	15	13	10	38	28	73.6	79
60-69	♂	4	0	2	6	4	66.6	5	6	6	17	11	64.7	23
	♀	11	3	5	19	14	73.6	11	8	6	25	19	76.0	44
70-79	♂	0	0	0	0	0	0.0	2	0	0	2	2	100.0	2
	♀	1	0	0	1	1	100.0	0	1	2	3	1	33.3	4
Totals	♂	35	10	18	63	45	71.4	32	28	26	86	60	69.7	149
	♀	99	29	44	172	128	74.4	68	59	63	190	127	61.5	362
Male and female	..	134	39	62	235	173	73.6	100	87	89	276	187	67.8	511

* In this column ♂ indicates male; ♀, female.

TABLE 2.—*Character of Symptoms in Chronic Inflammatory Disease of the Biliary Tract and a Comparison of Relief Afforded by Medical and Surgical Treatment*

	Surgical						Medical						
	Well	Improved	No Better	Total	Total Improved	% Improved	Well	Improved	No Better	Total	Total Improved	% Improved	Total
Colic	10	3	6	19	13	68.4	2	3	1	6	5	83.3	25
Colic (RUQ) *	17	3	4	24	20	83.3	11	5	6	22	16	72.7	46
Colic (RUQ); indigestion	23	7	5	35	30	85.7	8	8	7	23	16	69.5	58
Indigestion (RUQ)	37	22	18	77	59	76.6	19	21	24	64	40	62.5	141
Indigestion	14	8	13	35	22	62.8	15	21	21	57	36	63.1	92
Right upper quadrant	14	6	8	28	20	71.4	21	17	16	54	38	70.3	82
Colic; indigestion	13	1	3	17	14	82.8	3	6	5	14	9	64.2	31
Total	..	..	..	235	178	75.7	..	..	..	240	160	66.6	475

* RUQ indicates right upper quadrant

CHARACTER OF SYMPTOMS AND EFFECT OF TREATMENT

In any individual case the character of the symptoms must necessarily be the chief guide to the type of treatment to be followed. An analysis of the his-

tories shows that according to their symptoms patients with biliary disease may be classified in three general groups (table 2). The first group includes those patients in whom biliary colic is the outstanding or only symptom. This occurs in about 40 per cent of the cases. Frequently the attacks of colic occur only at long intervals, with an intervening period during which the individual is comfortable. The pain is due to the mechanical accident of the passage of a stone into the cystic or common duct.

A second general group includes those patients in whom the chief feature is more or less constant soreness and tenderness in the right upper abdominal quadrant or subcostal region. This discomfort is frequently accompanied by mild digestive disturbances.

A third general group includes that large number of patients in whom the chief symptom is a digestive disturbance. In these cases the reflex disturbance of gastric secretion and of gastric motility forces the attention of the patient on the stomach, which he naturally believes to be the source of his symptoms. In this group are included those numerous cases of chronic inflammatory biliary tract disease in which the symptoms are referable to pathologic changes and functional disturbances of the liver, pancreas and stomach.

At different times the same patient may belong in different groups or sometimes in all of them. Symptoms of the first and second types are commonly observed together, as is naturally the case since they depend on local disease of the gallbladder, whereas the gastric disturbances are more likely to be observed separately.

In general it may be stated that among cases in the first and second of these groups the results of surgery are fairly satisfactory, especially in cases in which colic has been a marked feature. Among cases in the third group, on the other hand, surgical procedures are apt to prove of less or of little value. It is better for patients in this group to be healed by the internist, who, although specific therapy is lacking, is frequently able to alleviate the discomfort of the patient.

DIAGNOSIS AND TREATMENT OF BILIARY TRACT DISEASE

In the diagnosis of chronic disease of the biliary tract and in the determination of the form of treatment to be applied, physical examination offers considerable evidence in favor of the fact that a particular type of body is more than usually likely to be associated with some pathologic condition of the biliary tract. Thus in this series of cases, short, stocky individuals, most of whom were considerably overweight, particularly if of the female sex, predominated markedly. In fact, this habitus is so noticeable that I am inclined to question the diagnosis of disease of the biliary tract in the case of a tall, lean individual, particularly if there is a tendency toward visceroptosis. It has been frequently observed that individuals of the latter type may present symptoms suggestive of the milder forms of disease of the biliary tract, and for this reason patients of this type have not infrequently been subjected to useless surgery.

In a number of cases it may be possible to palpate a tender gallbladder, and when this can be done it is valuable evidence in favor of surgical treatment. The best way in which to search for the gallbladder is to have the patient sit forward with the examiner's hand cupping underneath the right costal margin from behind. The gallbladder can be palpated only when it is somewhat distended in an individual without a great deal of adipose tissue in the abdominal wall and in the absence of rigidity. It will be felt as a soft, elongated mass, the axis of which extends from underneath the hepatic margin toward the midline. It moves freely with respiration and gives the impression of being near the anterior abdominal wall. The palpated gallbladder must be differentiated from carcinoma arising from the bile ducts or liver; from a tumor in or attached to the liver in the neighborhood of the gallbladder, such as a Riedel's lobe, a secondary new growth, an abscess, a gumma or a hydatid cyst; from a movable kidney or a renal tumor and from a tumor of the pyloric end of the stomach or of the duodenum, transverse colon or pancreas. Frequently some general hepatic enlargement and tenderness is palpable together with the distended gallbladder; and some general epigastric tenderness, indicative of the more widespread pathologic manifestations of the condition, is frequently associated with it.

Laboratory reports are of little value in the determination of the best type of treatment in these chronic cases, although they are of considerable value in the establishment of the diagnosis. The blood count shows little deviation from a series of normal counts, except during a flareup of the inflammatory reaction, when some leukocytosis may be noted. The finding of bile in the urine offers some confirmatory evidence, and an increased serum bilirubin suggests that the hepatic excretory power is reduced. In our series the bromsulphalein and other liver function tests gave no evidence of diminished hepatic function, and it is rather evident that these tests are not reliable in minor degrees of failure of hepatic function. I have not made any studies of the pancreatic enzymes, but observations by other workers of the activity of the enzymes of fasting duodenal juice would indicate a reduction of activity in chronic biliary disease, although the variations found in normal individuals make the value of these tests rather uncertain. Gastric analyses in our series showed normal acidity in 62 per cent of the cases, hyperacidity in 22 per cent and hypo-acidity in 16 per cent.

During recent years the widespread use of the Graham test has introduced a new factor which is undoubtedly of a good deal of assistance in the diagnosis of these cases. A review of our cases at the clinic, however, makes it clear that when a diagnosis of a nonfunctioning gallbladder is based on a cholecystogram, the clinical evidence should also be considered in the determination of the best type of treatment.

Accuracy in diagnosis marks the first step in treatment. In the cases which present a history of severe attacks of pain a differentiation should be made between pain due to biliary disease and that due to other causes of severe pain which is referred to the right upper quadrant. The typical pain of biliary colic is felt under the right costal margin and is usually referred through to the back, under the lower portion of the scapula, in the area supplied by the eighth dorsal segment, from which the gallbladder itself draws its chief nerve supply. Renal colic usually is felt posteriorly or farther out toward the side than is biliary colic and typically radiates downward along the course of the ureter. Epigastric pain of cardiac origin is frequently seen, and in several of our cases it was at first confused with biliary colic. In these cases, electrocardiographic study will prove of considerable value in establishing a dif-

ferentiation. The perforation of a gastric or duodenal ulcer may give a picture that is confusing at first, but this condition is likely to present greater shock and more generalized rigidity than is biliary colic, and this, together with the history, will aid in the differentiation. Acute hemorrhagic pancreatitis, which is accompanied by severe shock and presents a bad prognosis, merits consideration. The gastric crises of tabes are usually easily differentiated.

The majority of diseases of the biliary tract present a less spectacular but none the less characteristic symptom complex, and great care is necessary in establishing a diagnosis. Gastric and duodenal ulcer may present a similar clinical picture which can be ruled out only by a careful history and by the use of the x-rays. The reflex disturbance caused by a chronic appendicitis may be confusing, but careful abdominal examination will usually reveal localized tenderness over the appendical area. Hydronephrosis or some other renal condition may remain undiscovered until a urinalysis or perhaps a pyelogram is made. Colitis in some form may produce local tenderness which simulates that produced by a gallbladder lesion. Colitis in itself accompanies disease of the biliary tract, however, and indeed may be the forerunner of the biliary infection. The referred pain from arthritis of the thoracic spine may require careful examination of the back, and often the assistance of the x-rays is needed for differentiation. Abdominal aneurysms, adhesions, congenital bands and internal hernias occasionally cause confusing symptoms, but chief among the symptom complexes that harass the internist are those present in the ubiquitous patient with nervous or functional indigestion. Such an individual with his aerophagic tendencies, his disturbances of gastric secretion and motility and his chronic ill health presents a difficult problem on account of the similarity of his symptoms to those of biliary disease, and only careful and extended study with a realization of the nervous and mental instability of the patient will keep the physician from falling into a diagnostic error.

The diagnosis of biliary disease must not only exclude conditions external to the biliary tract, which give rise to confusing symptoms, but also localize the lesion within the tract.

A too narrow conception of gallbladder disease has been the cause of a great many poor surgical results, as it tends to indicate removal of the gallbladder as a logical therapy in all cases. The condition must be regarded as a structural and functional disturbance of the entire hepato-enteric system, involving the stomach, large and small bowel, liver, gallbladder and pancreas. Gallbladder surgery must therefore be confined to those cases in which the chief symptoms are referable to the gallbladder lesion, or in which the operative procedure will facilitate drainage from an infected liver or pancreas, a result which occurs from the dilatation of the common duct that follows cholecystectomy. Other lesions must of necessity be classed as medical.

PROPHYLAXIS OF BILIARY TRACT DISEASE

The relatively high incidence of failure of both medical and surgical treatment in infection of the biliary tract makes the prevention of such infection desirable, for, if the infection can be prevented, the whole train of symptoms will be averted. This focuses attention on the probable mode of infection. Theoretically this may occur by any one of three routes: (1) by the hematogenous route; (2) by ascent from the duodenum and (3) by contact infection spread from adjacent viscera. Ascending infection in the common bile duct is probably rare, although some cases in which the onset of biliary symptoms has dated from an attack of catarrhal jaundice are seen, and cases are reported in which a duodenal ulcer was known to have been present before the biliary symptoms supervened. Such an infection is probably associated with temporary obstruction to the natural flow of bile. Infection from adjacent viscera is relatively rare. Hematogenous infection must certainly play the main rôle, and either the arterial or the venous system may be the route by which the infection reaches the gallbladder.

In the vast majority of cases in our series some para-enteral focus was demonstrated, or a good history of such an infection could be obtained. There would seem, therefore, to be no reason to hesitate to remove diseased teeth, septic tonsils or other foci as part of the treatment of disease of the biliary tract or of its prophylaxis.

Of vastly greater interest and importance, however, are undoubtedly those hematogenous infections which are carried upward by the portal blood to the liver and disseminated among the liver, gallbladder and pancreas by the intimate lymphatic system known to exist among these organs. In this connection there seems little reason to doubt that infection arising from the large bowel is the chief source of infection of the biliary tract. Unhealthy conditions of the colonic mucosa which are frequently associated with constipation allow the passage of organisms, and the relief of constipation would undoubtedly do more toward reducing the incidence of disease of the biliary tract than any other single measure. Ninety per cent of the patients included in this series gave a history of constipation.

Chronic appendical infections should be treated by appendectomy and infected hemorrhoids should be removed. In numerous cases in our series which were treated surgically, a history suggestive of recurrent appendical inflammation was obtained which was confirmed by the observations at operation.

Injury to the liver as the result of the ingestion of toxic materials from the gastro-intestinal tract, especially alcohol, probably increases the possibility of bacterial infection of that organ. General metabolic conditions which disturb hepatic function should be corrected and care given to the general bodily hygiene.

SUMMARY

1. In a series of 511 cases of chronic inflammatory disease of the biliary tract, the end-results of medical and surgical treatment were studied after a considerable period.

2. The first step in treatment is an accurate diagnosis, which not only should exclude lesions external to the tract but also should localize the lesion within the tract.

3. The symptoms in any individual case give the best indication for treatment. In general, cases showing a localized lesion of the gallbladder are surgical, the remainder medical.

4. Physical examination and laboratory results are of secondary importance in determining the best type of therapy, although they are of prime importance in establishing the diagnosis.

5. The rather unsatisfactory status of therapy for this condition focuses attention on measures for its prophylaxis.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

GELATIN COMPOUND PHENOLIZED-MULFORD.—A mixture composed of gelatin, 625 parts; zinc oxide, 250 parts; glycerin, 1,900 parts; water, 1,900 parts, containing 1.5 per cent of phenol.

Actions and Uses.—Gelatin compound phenolized-Mulford is used in the preparation of bandages to cover chronic ulcers, unhealed secondary burns and the preparation of pressure bandages for varicose veins when surgical treatment is not necessary.

Dosage.—For use, the preparation is heated until it becomes liquid and is applied with a brush; over this a spiral bandage is applied and another layer of the preparation brushed on; this is repeated until a total thickness of three of the bandage and four of the preparation have been applied.

Manufactured by the H. K. Mulford Co., Philadelphia. No U. S. patent or trademark.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1929, p. 368).

H. K. Mulford Co., Philadelphia.

Diphtheria Toxoid-Mulford (see New and Nonofficial Remedies, 1929, p. 369): Also marketed in packages of one 30 cc. vial of diphtheria toxoid.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1929, p. 378).

The Cutter Laboratory, Berkeley, Calif.

Typhoid-Paratyphoid Prophylactic (see New and Nonofficial Remedies, 1929, p. 379): Also marketed in hospital size packages containing ten complete immunizations, each immunizing treatment consisting of three vials, the first containing 500 million killed typhoid bacilli, 250 million killed paratyphoid A bacilli, and 250 million killed paratyphoid B bacilli per cubic centimeter, and the second and third vials containing 1,000 million killed typhoid bacilli, 500 million killed paratyphoid A bacilli and 500 million killed paratyphoid B bacilli per cubic centimeter.

SILVER NITRATE (See New and Nonofficial Remedies, 1929, p. 397).

The following dosage form has been accepted:

Ampoule Solution Silver Nitrate 1 Per Cent-Cutter: Solution silver nitrate 1 per cent, approximately 0.2 cc., contained in ampules composed of beeswax.

Dosage.—For the prevention of ophthalmia neonatorum, two drops are placed in each eye after preliminary cleansing.

Prepared by the Cutter Laboratory, Berkeley, Calif. No U. S. patent or trademark.

MERTHIOLATE.—Sodium Ethylmercuri Thiosalicylate. —$C_2H_5Hg.S.C_6H_4.COONa$. Merthiolate contains from 49.15 to 49.65 per cent of mercury in organic combination.

Actions and Uses.—Merthiolate, Lilly, is a potent germicide for spore-bearing and non-spore-bearing bacteria. It is used for sterilizing tissue surfaces. It does not precipitate with serum proteins. Merthiolate is much less toxic than mercuric chloride. Rabbits tolerated intravenous doses of 0.020 Gm. to 0.025 Gm. per Kg., and rats as much as 0.045 Gm. when injected slowly, the animals being observed in both cases for seven days. Hemolytic tests with washed rabbit red blood cells indicate that merthiolate has relatively low hemolytic activity.

Dosage.—The concentration recommended for general application is 1 in 1,000 isotonic solution. For hypersensitive mucous membranes, dilutions of from 1 in 2,000 to 1 in 5,000 may be used.

Manufactured by Eli Lilly & Company, Indianapolis, Ind. U. S. patent 1,672,615 (June 5, 1928; expires 1945). U. S. trademark 252,182.

Merthiolate Solution 1:1,000: One gram of merthiolate in 1,000 cc. of water, buffered with 1.4 Gm. of sodium borate in 1,000 cc. and containing sodium chloride to make the solution approximately isotonic.

Merthiolate occurs as a light cream colored nonhygroscopic crystalline powder, having a slight odor. It is stable in air but unstable in sunlight. One part by weight of merthiolate dissolves in approximately 1 part of water or in approximately 8 parts of 95 per cent alcohol. It is practically insoluble in ether and benzene. A 1 per cent solution in water has a p_H value of about 6.7. A 1 per cent solution is compatible with solutions of procaine and ephedrine salts.

Add diluted sulphuric acid to a solution of merthiolate: a white precipitate of ethylmercurisalicylic acid is produced. Recrystallize this product from 95 per cent alcohol and dry in a vacuum over sulphuric acid; it melts at 111-114 C. Bubble carbon dioxide into a 1 per cent solution of merthiolate: a precipitate is produced which is soluble in sodium hydroxide. Add a few drops of silver nitrate solution to a 1 per cent solution of merthiolate: a white precipitate separates. Add a few drops of lead acetate solution to a 1 per cent solution of merthiolate: a white precipitate separates. Add a few drops of copper sulphate solution to a 1 per cent solution of merthiolate: a green precipitate separates.

Shake 0.5 Gm. of merthiolate, accurately weighed, with 20 cc. of anhydrous ether for ten minutes; filter, evaporate the ether, dry in a vacuum over sulphuric acid to constant weight: the weight of the residue does not exceed 0.003 Gm. Dissolve about 0.2 Gm. of merthiolate in 5 cc. of sulphuric acid: not more than a slight yellow color is produced. Mix equal parts of a 1 per cent solution of merthiolate and ammonium sulphide: a white precipitate is formed, but no blackening occurs after standing forty-eight hours. Dry 0.1 Gm. of merthiolate to constant weight in a vacuum over sulphuric acid: it does not lose more than 0.5 per cent in weight.

Transfer to a platinum dish about 1 Gm. of merthiolate, accurately weighed; add 3 cc. of sulphuric acid and evaporate; add 2 cc. of sulphuric acid and evaporate; add 2 cc. of sulphuric acid and evaporate; introduce into the dish a small piece of ammonium carbonate and heat until it is volatilized, cool in a desiccator and weigh: The sodium is not less than 5.1 per cent nor more than 5.7 per cent. Transfer about 0.2 Gm. of merthiolate, accurately weighed, to a 100 cc. Erlenmeyer flask; add 3 cc. of sodium hydroxide solution, 10 cc. of water, 20 cc. of sodium sulphide (50 Gm. crystals dissolved and diluted to make 100 cc.) and 0.25 Gm. of sodium hydrosulphite; boil under a reflux for twenty minutes; transfer to a weighed platinum dish, dilute to 105 cc., and electrolyze at 4 volts for seventeen hours; remove the solution; wash the dish with water; dry the dish by evaporating the ether, after washing it with alcohol and then ether; weigh: The mercury is equivalent to not less than 49.1 per cent nor more than 49.6 per cent.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

INTRAMUSCULAR IRON ARSENIC COMP. (NO. 201) AND (INTRAVENOUS) IRON, CACOD. AND GLYCEROPHOSPHATE (NO. 202) NOT ACCEPTABLE FOR N. N. R.

A circular with the caption "Formulas of definite therapeutic value" issued by Sci-Medico, Inc., 20 West Twenty-Second Street, New York, lists an extensive line of preparations marketed in the form of ampules and intended for intramuscular and intravenous administration and includes the following as having "proved useful in the treatment of anemia, nervous debility, neurasthenia, chlorosis and wherever a general tonic is indicated": (Intramuscular) Iron, Arsenic Comp. (No. 201), each 5 cc. ampule being stated to contain Iron Cacodylate ¼ grain, Sodium Cacodylate ⅜ grain, Sodium Hypophosphite 3/16 grain, Mangarese Hypophosphite 1/24 grain, Sodium Citrate ⅝ grain, and (Intravenous) Iron, Cacod. and Glycerophosphate (No. 202) each 5 cc. ampule being stated to contain "Iron Cacod. (Colloidal)" 1 grain, Sod. Cacodylate 4 grains, Sod. Glycerophosphate 1½ grains.

Iron (ferric) cacodylate had some vogue about ten years ago. At that time the Council examined the evidence for its therapeutic usefulness and rationality and reached the conclusion that this drug presents an irrational method of the administration of iron and arsenic, holding that a much more rational method of administering these two drugs would be separately, in which case a better control is possible (Rep. Coun. Pharm. Chem., 1920, p. 62). Since "Intramuscular Iron, Arsenic Comp. (No. 201)" presents a method of administering this drug, the preparation must be considered irrational and the claims advanced for its value unwarranted. The preparation is rendered thoroughly irrational and unscientific by the inclusion of another form of cacodylate (sodium cacodylate) and of sodium hypophosphite, manganese hypophosphite and sodium citrate. In the case of "(Intravenous) Iron, Cacod. and Glycerophosphate" the objection to the use of ferric cacodylate applies; in addition, there is no warrant for the intravenous administration of iron for the reason that this drug must ordinarily be administered over a protracted period of time and hence the intravenous route is contraindicated. The preparation is rendered thoroughly unscientific and objectionable by the inclusion in its composition of another form of cacodylate and sodium glycerophosphate.

The Council declared Intramuscular Iron, Arsenic Comp. (No. 201) and (Intravenous) Iron, Cacod. and Glycerophosphate (No. 202) (Sci-Medico, Inc., New York) unacceptable for New and Nonofficial Remedies because they are irrational mixtures marketed with unwarranted therapeutic claims.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, DECEMBER 7, 1929

THE EXTENT OF ILLNESS IN THE UNITED STATES

Huxley described the great tragedy of science as "the slaying of a beautiful hypothesis by an ugly fact." A wide variety of views is offered regarding the problems of the medical profession in relation to the public. The adequacy of existing curative and preventive medical services and their effectiveness are being questioned. To these problems the Committee on the Cost of Medical Care is giving careful consideration. It has become imperative to secure facts lest a tragedy of errors supervene. The Commission on Medical Education, organized under the leadership of President Lowell of Harvard University, has already reported an extensive study of the demands and needs for medical service, in part by sampling the demands on general practitioners in communities small enough to give a clear picture of general practice. The preliminary surveys, to which references have already been made in The Journal, indicated that about 75 per cent of the office visits were for minor surgery, upper respiratory infections, and general medical and venereal diseases. About 90 per cent of home visits were for infections of the respiratory tract, general medical and contagious diseases, obstetrics and minor surgery. More than 90 per cent of the illnesses are of types that cannot be controlled on a community basis but are problems of individual patients. Less than 10 per cent are diseases against which public health efforts are mainly directed. This fact is an index of the growing efficiency of public health efforts and emphasizes the necessity of treating the patient as well as the disease. The common causes of disabling illnesses and absenteeism correspond closely with 80 per cent of the combined office and home visits of the general practitioner.[1]

The dulness of ordinary statistics is lost in some of the discoveries of the Committee on the Cost of Medical Care. They indicate for this country that people are, on the average, disabled by illness at least once annually, men about once a year, women from once to twice, and children more than twice each school year (of 180 days).[2] On the basis of the lowest rate for disabling illness found by the United States Public Health Service, there would be about 130,000,000 cases of disabling illness in the United States each year and, if nondisabling illnesses should be added, this figure would be more than doubled. What this may mean is indicated by the conclusion that the 36,000,000 wage earners in the United States lose at least 250,000,000 work days a year and the 24,000,000 school children 170,000,000 days each school year. These figures take into account only half of the total population.

Numerous surveys have indicated that colds and bronchial conditions, and influenza and grip, are obviously the most serious causes of disability from the standpoint both of frequency and of days lost. On the basis of both the number of cases and the total time lost, digestive diseases and disorders loom large. Diseases of the pharynx, tonsil and larynx—including adenoids, tonsillitis, sore throat and croup—are also of considerable frequency and severity. The nonvenereal diseases of the genito-urinary system and adnexa receive prominence in the list largely because of the frequency of cases of dysmenorrhea among women and girls; but included are acute and chronic kidney diseases, which each year cause an increasing percentage of the total mortality. It may not be an agreeable reminder, but the medical profession must nevertheless face the warning that in 1928 there were nearly 2,000,000 births in the registration area, many of them followed by complications and a considerable number (a larger proportion than in most civilized countries) by death. On the other hand, the public and particularly a small obstructive group of antivaccinationists should properly bear much of the odium of more than 36,000 cases of smallpox reported in a recent year. According to these compilations, special estimates place the number of persons in the United States who are mentally defective (feebleminded, imbeciles and idiots) at more than 900,000, the number of blind at more than 100,000, the number with major speech defects at 1,000,000, and the number of school children wholly or partly deaf at 3,000,000.

This country is by no means oblivious of the great problems here presented. There are in the United States more physicians per thousand people than in any other country in the world. Hospital beds and clinics show rapid rates of increase, clinics having the most spectacular growth of all. Hospitals other than those for nervous and mental diseases contain, on an average, more than 350,000 patients at all times. The total in all hospitals on a single "average" day is about 700,000. Such striking figures, even with their admitted

1. Preliminary Report of Commission on Medical Education, January, 1927.

2. Mills, A. B.: The Extent of Illness and of Physical and Mental Defects Prevailing in the United States, abstract of publication 2 of the Committee on the Cost of Medical Care. Peebles, A.: A Survey of Statistical Data on Medical Facilities in the United States, abstract of publication 3 of the Committee on the Cost of Medical Care, 910 Seventeenth Street, Washington, D. C.; the data quoted are taken from these preliminary surveys.

incompleteness, justify the reminder of Mills of an extent of illness and physical and mental defectiveness in the population which causes an incalculable amount of human suffering and economic loss. Some of these diseases and conditions, Mills adds, rob the nation's people of their vitality and destroy their efficiency; others lead to sudden death and the premature cutting off of life. This continuance of disease, part of it preventable, indicates a field for the more widespread and efficient utilization of preventive and curative measures now known.

THE REACTION OF MORNING URINE

Although the reaction of a twenty-four hour sample of urine in health is usually acid, urine taken at varying times during the day may show marked deviations from this reaction and frequently is slightly alkaline. The latter is true of the kidney secretion voided soon after a meal and has long been designated as the "alkaline tide." This change mirrors, as one writer has expressed it, the necessary balance involved in the preservation of a constant p_H in the blood and the body tissues, along with the production of a markedly acid secretion, the gastric juice.

The morning urine tends to show a diminished acidity, so that the presence or absence of an early postprandial "tide" has been suggested as an indirect index of the probable presence or absence of free hydrochloric acid in the gastric juice of the person under examination. It should be remembered, however, that a relative alkalosis may arise in other ways and lead to a compensatory renal elimination of alkali. In the morning there may be a pulmonary "blowing off" of carbon dioxide which has accumulated during the night. Such overventilation tends to promote alkalinity of the urine, as Grant and Goldman [1] pointed out several years ago. They noted, during the course of a series of experiments in which the subject was required to go through a period of increased respiration, that the urine collected at the end of this period was cloudy, and that the cloudiness was due to the fact that the urine was alkaline and contained precipitated phosphates. In explanation of these observations it was surmised that the overventilation, by washing out carbon dioxide of the blood, tended to make the blood more alkaline and that, in order to maintain a constant hydrogen ion concentration in the body, alkali was excreted by way of the kidneys.

In a more recent study of persons at the Clifton Springs (N. Y.) Sanitarium and Clinic, Hubbard [2] has concluded that there are two factors which must be taken into consideration to explain changes in reaction of the morning urine. One is the secretion of hydrochloric acid by the stomach which causes the development of an alkalinity after a meal is fed. The other is, probably, an adjustment of the respiration to waking conditions, which frequently shows its effect early in the morning. If the interplay of these two factors is kept in mind, Hubbard states, most results can be understood. Hubbard and Steele [3] have pointed out, with respect to additional discrepancies related to the morning "alkaline tide" of healthy persons, that in some the changes in reaction correspond closely to those which would be expected if gastric secretion induced by foods caused a relative alkalosis in the body and a consequent alkalinity of the urine, for when food is omitted the changes do not occur. In others an increased alkalinity of the urine develops whether food is taken or omitted. In these there seems to be an acid-alkali rhythm which does not depend on the immediate stimulation of the gastric glands but which may be secondary to a secretory rhythm of the stomach. In still others there is a marked alkalinity which develops before any meal is eaten and which may persist throughout the entire morning period, even when food is omitted.

1. Grant, S. B., and Goldman, A.: A Study of Forced Respiration: Experimental Production of Tetany, Am. J. Physiol. **52**: 209 (June) 1920.
2. Hubbard, R. S.: The Reaction of the Morning Urine, J. Biol. Chem. **84**: 191 (Oct.) 1929.

DIET, SERUM PROTEINS AND EDEMA

Edema appears as a concomitant of various abnormal bodily states. The explanation of its genesis cannot yet be given in a single satisfactory generalization. Such hypotheses as that edema is due to increased permeability of the capillary walls or changes in the filtrability of the blood, alterations in the affinity of the tissue colloids for water, or what not, merely present theses that deserve careful experimental investigation. The experience thus gained in the laboratory of the physiologist may be greatly augmented by the observations of the clinic, where edema is a commonly observed symptom in human disorder. At present, indeed, it may well be doubted whether a single etiologic factor will suffice to clarify the problem of edema. An indication of its complexity is afforded by the manifestation of so-called war dropsy, or nutritional edema. This has been a striking manifestation wherever famine occurs; it was often seen in central Europe during the later period of the World War.

At that time the nutritional edema was frequently ascribed to specific dietary deficiencies, notably lack of certain vitamins. It is well known that edema may occur in beriberi, in which avitaminosis, notably shortage of vitamin B, undoubtedly plays an important part. But the latter is usually only one of the shortcomings of the defective pathogenic diets; and edema does not always occur when the characteristic polyneuritis is present. A number of investigators [4] have demon-

3. Hubbard, R. S., and Steele, T. M.: Variations in the Morning Alkaline Tide of Normal Individuals, J. Biol. Chem. **84**: 199 (Oct.) 1929.
4. Frisch, R. A.; Mendel, L. B., and Peters, J. P.: The Production of Edema and Serum Protein Deficiency in White Rats by Low Protein Diets, J. Biol. Chem. **84**: 167 (Oct.) 1929. Kohman, E. A.: Am. J. Physiol. **51**: 378 (March) 1920. Denton, M. C., and Kohman, E. A.: J. Biol. Chem. **36**: 249 (Nov.) 1918. Maver, Maria B.: Nutritional Edema and "War Dropsy," J. A. M. A. **74**: 934 (April 3) 1920.

strated that an edema somewhat comparable to nutritional edema can be evoked in animals by a diet deficient in protein without any other known shortage in the regimen. In infants with digestive disorders, who were being fed on diets of flour or rice and water and who developed the condition called *mehlnährschaden* by Czerny, Gorter [5] noticed edema along with the other symptoms.

In all of these cases, addition of protein to the intake brought relief without any special vitamin or mineral supplements. Frisch, Mendel and Peters [4] of Yale University have now demonstrated that the regimens referred to tend to give rise to low contents of protein in the blood serum. Such a change in the composition of the blood may well be responsible for the genesis of nonobstructional edemas and should be reckoned with as they now are in the management of some types of nephrosis with lowered serum protein content. The Yale investigators point out that the serum proteins are only partly responsible for the production of edema. Here, as in other conditions, they determine a tendency toward water retention which is influenced by other factors. The fluid intake is important, for if it is reduced in any way, voluntarily or by some other means such as vomiting, edema does not develop, even if the serum proteins are actually quite low. The lowering of the serum proteins has assumed increasing importance and, as Frisch, Mendel and Peters conclude, appears to be the factor most concerned in the production of edema not caused by mechanical stasis.

THE CAUSATION OF PULMONARY ABSCESS

Local suppuration involving the lung tissue and leading to the formation of a pulmonary abscess presents an annoying problem that may arise under a variety of conditions. It is encountered in chronic pulmonary tuberculosis or in pneumonia, though in lobar pneumonia lung abscess is a complication that is much rarer than was previously supposed.[6] Perhaps the most disconcerting aspects are presented by pulmonary abscesses as sequelae of surgical operations. One hypothesis has attributed the familiar postoperative complication primarily to the aspiration of infected material during the operation. There can be little doubt that under current methods of anesthesia a part of the buccal contents is aspirated into the tracheobronchial tree and even into the lung. It is possible, though by no means easy experimentally, to produce an infection of the lung by insufflation or bronchial implantation of micro-organisms.

On the other hand there are many evidences that, although aspiration is of frequent occurrence, it is not necessarily disastrous. It has been pointed out [7] that the tracheobronchial defense is elaborate. The lining itself is of a protective nature; it is constantly exposed to infection, yet there is much experimental evidence to support the contention of high endobronchial resistance. Cutler [7] and his co-workers at Western Reserve University School of Medicine in Cleveland have come to the conclusion that pulmonary abscesses owe their origin most commonly to infected emboli. From experimental studies they believe that the insufflation and aspiration of bacteria, anaerobic or aerobic, freshly obtained from the gums of persons with pyorrhea or from an abscess cavity, and even the mechanical placement by way of a bronchoscope of such bacteria and material, will not produce abscess of the lung unless there is complete bronchial obstruction, with subsequent atelectasis and anaerobiasis. They propose that embolism from a septic field produces the original lesion and that it becomes a chronic abscess only when secondarily infected by the ever present mechanism of aspiration. It may even be, Cutler adds, that in operations about the mouth these anaerobic organisms are actually included in the thrombi. This may indeed account for any discrepancy in favor of a higher incidence for abscess following tonsillectomy than following operations in septic fields elsewhere.

Perhaps a combination of the aspiration and embolism mechanisms offers the most plausible explanation for certain types of pulmonary abscess. According to Cutler, however, it must be borne in mind that the only factor common to all surgical procedures is the wound. Anesthesia and anesthetics vary; so do the position of the patient, the heat of the room and the incidence of seasonal respiratory disease. The wound, with injury to blood vessels and all its perils, is the surgeon's task; according to Cutler, he should look there first of all for ensuing difficulties and not to environmental conditions that are always shifting.

5. Gorter, E.: Monatschr. f. Kinderheilk. **251**: 211, 1925.
6. Emerson, C. P., in Cecil's Textbook of Medicine, Philadelphia, W. B. Saunders Company, 1927.
7. Cutler, E. C.: The Experimental Production of Abscess of the Lung, Am. J. Dis. Child. **38**: 683 (Oct.) 1929.

Current Comment

ANEMIA IN BRIGHT'S DISEASE

Only recently has the significance of anemia in disease of the kidneys received the special attention that it merits. When "cardiovascular renal" disease is recognized as a systemic rather than a local disorder, attention naturally turns to hemoglobin percentages and to blood counts as interpreters of the situation. Dr. Benjamin Ashe [1] has found them to be useful and reliable guides. Anemia is constantly present with renal insufficiency, however the latter may be produced, and closely parallels the degree of functional impairment. Anemia may, of course, be due to some other cause, such as cancer, along with the renal anemia. In most cases this second source of the anemia will hardly escape clinical observation. The actual nature of an observed anemia is obtained only when the hemoglobin percentage is observed as well as the blood count. It

1. Ashe, Benjamin: The Hemoglobin Percentage and the Blood Cell Count in Bright's Disease, Myocardial Insufficiency and Hypertension, Arch. Int. Med. **44**: 506 (Oct.) 1929.

is the relation between these two observations, in other words the determination of the color index, which provides the clue as to whether the kidney, the heart or the blood vessels are most deserving of aid and attention. In the case of renal insufficiency the average color index value was found to be approximately 0.9. However, there is variation: in cases of marked and maximal insufficiency the anemia may be of a pernicious type with a color index of 1 or even higher. A low color index with low hemoglobin percentage is indicative of congestive myocardial failure, while a low color index with high hemoglobin is characteristic of cases manifesting cerebral lesions.

THE QUARTERLY CUMULATIVE INDEX MEDICUS

A few years ago the headquarters of the American Medical Association undertook to perpetuate, for the advancement of medical science, the *Index Medicus*, for many years the only available index to the medical periodical literature of the world. On several occasions it has been pointed out in these columns that the *Index Medicus*, from the time when it was founded by Dr. John Shaw Billings, through the period when it was maintained by Dr. Robert Fletcher, through the vicissitudes of a later period, was never a complete index to all medical literature. The attempt to index regularly the pot-boilers that fill the commercialized periodicals of the European countries, the fly-by-night journals of some of the South American countries, and particularly those so-called gazettes, journals, briefs, councils, times and what not that infest our own country, has seemed to the editors of every scientific index a waste not only of time but also of money. Many of these sheets are looked over, but they are not overlooked. Unfortunately, their contents rarely seem to demand inclusion in any index that aims to represent medical progress. There never was, moreover, an index of the medical literature of the world that could be made to sustain itself, let alone yield a profit. The *Index Medicus*, published quarterly, never complete, cost the Carnegie Institution around twenty thousand dollars a year and was sold to an extremely limited audience. When the American Medical Association took over this publication in 1927 and combined it with its own highly successful *Quarterly Cumulative Index*, a complete index to some three hundred of the leading medical publications of the world, the Carnegie Institution agreed to aid in the maintenance of the combined venture, but only temporarily. It was the belief of the directors of the Carnegie Institution that the publication of such an index was the duty of the medical profession. They promised, therefore, only ten thousand dollars a year for a term of five years, with the hope that the American Medical Association would be able, by the end of that time, through efficient management and promotion, such as has characterized the other activities of the Association, to fit the *Index* into its annual budget. From the first it has been realized that the *Index* would never be a self-sustaining venture. The subscription has been built to approximately five times the number of subscribers that supported the old *Index Medicus*. The subscription rates have been kept low. The work has been expanded so that multiple indexing of every worth while contribution in the field of medical periodical literature is assured. The maintenance of a staff in the Army Medical Library in Washington and of a large staff in the headquarters office in Chicago represents a considerable drain on the finances of the Association. The actual facts of the matter are that the *Index* costs the Association from twenty-five to thirty thousand dollars a year and that the termination of the agreement with the Carnegie Institution will add another ten thousand dollars to this total. The contribution is not begrudged; the trustees of the Association look on it as one of the finest of the many efforts that the Association makes to aid world progress in medicine and it has received for the most part the appreciation of the medical world. German, Italian, British and French periodicals have added their encomiums for this publication to the many that have come from American leaders. The sad aspect of the matter is that the steady maintenance of this altruistic scientific work should have to pause, even for a moment, to hearken to the buzzing of flies on the chariot wheels, which want to know where the vehicle is going.

INTESTINAL PNEUMATOSIS

The expression "intestinal pneumatosis" is a succinct designation for the rare condition in which gases accumulate in the endothelial-lined spaces of the intestinal wall during chronic inflammatory states of the surrounding tissue. The phenomenon has been described, with reference to the characteristic gas cysts, as pneumatosis cystoides intestinalis. The incidence of four cases in 260 necropsies of children in the department of pathology at the Western Reserve University, Cleveland, has convinced Moore [1] that the malady occurs oftener than has been generally assumed. The origin of the cysts has been considerably debated. Some investigators have argued that the gas is the product of localized bacterial action comparable to what is found under certain emphysematous conditions. Gas-producing bacilli are, of course, well known; but the current evidence by no means indicates that microorganisms are always present in gas cysts of the intestine. Another hypothesis assumes that the cells lining the cyst are neoplastic and have acquired the property of gas formation. The chemical theory proposes that certain cells, not neoplastic, have gained the capacity to form gas by specific protoplasmic action. The latter are obviously rather far fetched assumptions. Moore believes that the evidence is strong for the probable entrance of gas from the intestinal lumen through small gross or microscopic ulcerations. The majority of cases, he asserts, are associated with some lesion inducing hyperperistalsis, such as gastric ulcer, pyloric stenosis or an enteritis. In many patients there is gross ulceration of the gastro-intestinal tract and, in others, associated diseases in which microscopic breaks in the mucosa are frequent. According to Moore, the absence of bacteria supports the mechanical theory as strongly as it belittles the bacterial theory.

1. Moore, R. A.: Intestinal Pneumatosis, Am. J. Dis. Child. **38**: 818 (Oct.) 1929.

THE PRESIDENT'S MESSAGE

President Hoover delivered his annual message to Congress, December 3. The following excerpts from the President's address should be read by every physician:

SOCIAL SERVICE GIVEN IN PATERNALISTIC WAY

The federal government provides for an extensive and valuable program of constructive social service, in education, home building, protection to women and children, employment, public health, recreation, and many other directions.

In a broad sense federal activity in these directions has been confined to research and dissemination of information and experience, and at most to temporary subsidies to the states in order to secure uniform advancement in practice and methods. Any other attitude by the federal government will undermine one of the most precious possessions of the American people; that is, local and individual responsibility. We should adhere to this policy.

Federal officials can, however, make a further and most important contribution by leadership in stimulation of the community and voluntary agencies, and by extending federal assistance in organization of these forces and bringing about cooperation among them.

CONFERENCE ON CHILD HEALTH

As an instance of this character, I have recently, in cooperation with the Secretaries of Interior and Labor, laid the foundations of an exhaustive inquiry into the facts precedent to a nation-wide white house conference on child health and protection. This cooperative movement among interested agencies will impose no expense upon the government. Similar nation-wide conferences will be called in connection with better housing and recreation at a later date.

In view of the considerable difference of opinion as to the policies which should be pursued by the federal government with respect to education, I have appointed a committee representative of the important educational associations and others to investigate and present recommendations. In cooperation with the Secretary of the Interior, I have also appointed a voluntary committee of distinguished membership to assist in a nation-wide movement for abolition of illiteracy.

I have recommended additional appropriations for the federal employment service in order that it may more fully cover its cooperative work with state and local services. I have also recommended additional appropriations for the women's and children's bureaus for much-needed research as to facts which I feel will prove most helpful.

PUBLIC HEALTH DEMANDS AID OF ALL AGENCIES

The advance in scientific discovery as to disease and health imposes new considerations upon us. The nation as a whole is vitally interested in the health of all the people; in protection from spread of contagious disease; in the relation of physical and mental disabilities to criminality; and in the economic and moral advancement which is fundamentally associated with sound body and mind.

The organization of preventive measures and health education in its personal application is the province of public health service. Such organization should be as universal as public education. Its support is a proper burden upon the taxpayer. It cannot be organized with success, either in its sanitary or educational phases, except under public authority. It should be based upon local and state responsibility, but I consider that the federal government has an obligation of contribution to the establishment of such agencies.

In the practical working out of organization, exhaustive experiment and trial have demonstrated that the base should be competent organization of the municipality, county, or other local unit. Most of our municipalities and some 400 rural counties out of 3,000 now have some such unit organization. Where highly developed, a health unit comprises at least a physician, sanitary engineer and community nurse with the addition in some cases, of another nurse devoted to the problems of maternity and children. Such organization gives at once a fundamental control of preventive measures and assists in community instruction.

GOVERNMENT LENDS HELPING HAND

The federal government, through its interest in control of contagion, acting through the United States Public Health Service and the state agencies, has in the past and should in the future concern itself with this development, particularly in the many rural sections which are unfortunately far behind in progress. Some parts of the funds contributed under the Sheppard-Towner Act through the Children's Bureau of the Department of Labor have also found their way into these channels.

I recommend to the Congress that the purpose of the Sheppard-Towner Act should be continued through the Children's Bureau for a limited period of years; and that the Congress should consider the desirability of confining the use of federal funds by the states to the building up of such country or other local units, and that such outlay should be positively coordinated with the funds expended through the United States Public Health Service directed to other phases of the same county or other local unit organization. All funds appropriated should of course be applied through the states, so that the public health program of the county or local unit will be efficiently coordinated with that of the whole state.

SINGLE AGENCY IS URGED FOR CARE OF WAR VETERANS

It has been the policy of our government almost from its inception to make provision for the men who have been disabled in defense of our country. This policy should be maintained. Originally it took the form of land grants and pensions. This system continued until our entry in the World War. The Congress at that time inaugurated a new plan of compensation, rehabilitation, hospitalization, medical care and treatment, and insurance, whereby benefits were awarded to those veterans and their immediate dependents whose disabilities were attributable to their war service. The basic principle in this legislation is sound.

In a desire to eliminate all possibilities of injustice due to difficulties in establishing service connection of disabilities, these principles have been to some degree extended. Veterans whose diseases or injuries have become apparent within a brief period after the war are receiving compensation; insurance benefits have been liberalized. Emergency officers are receiving additional benefits.

HOSPITALS OPEN TO ALL VETERANS

The doors of the government's hospitals have been opened to all veterans, even though their diseases or injuries were not the result of their war service. In addition adjusted service certificates have been issued to 3,433,300 veterans. This in itself will mean an expenditure of nearly $3,500,000,000 before 1945, in addition to the $600,000,000 which we are now appropriating annually for our veterans' relief.

The administration of all laws concerning the veterans and their dependents has been on the basis of dealing generously, humanely and justly. While some inequalities have arisen, substantial and adequate care has been given and justice administered. Further improvement in administration may require some amendment from time to time to the law, but care should be taken to see that such changes conform to the basic principles of the legislation.

I am convinced that we will gain in efficiency, economy, and more uniform administration and better definition of national policies if the Pension Bureau, the National Home for Volunteer Soldiers and the Veterans' Bureau are brought together under a single agency. The total appropriations to these agencies now exceed $800,000,000 per annum.

DEPARTMENTAL REORGANIZATION

This subject has been under consideration for more than twenty years. It was promised by both political parties in the recent campaign. It has been repeatedly examined by committees and commissions—congressional, executive and voluntary. The conclusions of these investigations have been unanimous that reorganization is a necessity of sound administration; of economy; of more effective governmental policies and of relief to the citizen from unnecessary harassment in his relations with a multitude of scattered governmental agencies. . . .

TWO PRINCIPLES ESSENTIAL

It seems to me that the essential principles of reorganization are two in number. First, all administrative activities of the same major purpose should be placed in groups under single-headed responsibility; second, all executive and administrative functions should be separated from boards and commissions and placed under individual responsibility, while quasilegislative and quasijudicial and broadly advisory functions should be removed from individual authority and assigned to boards and commissions. Indeed, these are the fundamental principles on which our government was founded, and they are the principles which have been adhered to in the whole development of our business

structure, and they are the distillation of the common sense of generations.

For instance, the conservation of national resources is spread among eight agencies in five departments. They suffer from conflict and overlap. There is no proper development and adherence to broad national policies and no central point where the searchlight of public opinion may concentrate itself.

FUNCTIONS SHOULD BE GROUPED

These functions should be grouped under the direction of some such official as an assistant secretary of conservation. The particular department or cabinet officer under which such a group should be placed is of secondary importance to the need of concentration. The same may be said of educational services, of merchant marine aids, of public works, of public health, of veterans' services, and many others, the component parts of which are widely scattered in the various departments and independent agencies. It is desirable that we first have experience with these different groups in action before we create new departments. These may be necessary later on.

Association News

THE DETROIT SESSION

The Scientific Exhibit

The Scientific Exhibit for the Detroit Session of the American Medical Association, June 23-27, 1930, will be located in the Detroit Masonic Temple. In this excellently equipped building there will be housed also the Registration Bureau, Technical Exhibits and the Sections of the Scientific Assembly.

The Committee on Scientific Exhibit emphasizes again the necessity of presenting exhibits in a manner that will stress their scientific value. This may be done by carefully worded explanatory placards or legends, and particularly by personal demonstration by the investigator himself. The committee feels that the Scientific Exhibit offers unusual opportunity for investigators and visiting physicians to meet and discuss informally the phases of the research being presented. Also it should be remembered that general attractiveness is essential. The committee will do its part by providing attractive booths decorated appropriately. Uniform illuminated signs giving the name of the exhibitor and the title of the exhibit will be furnished, as well as a uniform shelf with covering. Judging from the interest already manifested, the next Scientific Exhibit will probably be the most outstanding in the history of the Association.

Application blanks for the Scientific Exhibit may be obtained by sending requests for them to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago.

Applications must be received before March 20, 1930. In order that the amount of space available may be apportioned to the best advantage to all concerned, the committee will make no assignments previous to April 10, 1930; nor can large blocks of space be assigned to individual exhibitors.

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock, Central Standard Time, with the exception of Friday, when the health message is delivered at 9:45, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of December 9-14 is as follows:

December 9. "Turpentine Poisoning," by Dr. R. G. Leland.
December 10. "Seeing the Invisible," by Miss Mildred Whitcomb.
December 11. "Fraudulent Testimonials," by Mr. T. V. McDavitt.
December 12. "A Review of Eating Fads," by Dr. J. O. Nall.
December 13. "Vitamin D Preparations," by Mr. Cecil Bean.
December 14. "Food Faddists," by Dr. Arthur J. Cramp.

Evening Health Hints from Hygeia, 8 o'Clock, Central Standard Time

December 9. Winter Weather Brings Danger of Pneumonia.
December 10. In the Interest of Uniform Signals.
December 11. Use of Parks for Play Is a Modern Idea.
December 12. Air or Sun Are Best Fumigants.
December 13. Leaky Gas Stoves May Cause Poisoning.
December 14. Reeducate Deafened by Lip Reading.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Society News.—The California Sanatorium Association was organized at a meeting at the Wish-i-ah Sanatorium at Auberry, November 12; Dr. Everett Morris was elected president.——The University of Southern California has purchased from the widow of the late Dr. Charles W. Bryson the library of the old medical school on East Washington Street, Los Angeles, which consists of about 4,000 volumes, including files of some of the most important medical journals.——A large collection of etchings, engravings and mezzotint portraits of illustrious medical men of history is being exhibited in the Lane Medical Library, San Francisco, December 2-14; these are from the collections of Drs. Herbert M. Evans and William J. Kerr of the University of California.——The San Francisco County Medical Society was addressed, December 3, by Drs. Ernest H. Falconer on blood platelets, and Fred H. Kruse on atophan poisoning. Dr. Lewellys F. Barker, emeritus professor of medicine, Johns Hopkins University School of Medicine, Baltimore, will address the society, December 10, on "The Danger of Neglect of Accurate Physical Examinations."——The Los Angeles Surgical Society will hold its annual banquet, December 17, at the Jonathan Club; Dr. Kellogg Speed, associate clinical professor of surgery, Rush Medical College, Chicago, will read a paper on "Unhappy Results in the Treatment of Fractures." The retiring president, Dr. Robert V. Day, will give an address. Members of the Los Angeles County Medical Society and their guests are invited. Reservations will be received until December 14 at $3.50 per plate. The secretary is Dr. Alfred E. Gallant, 1033 Roosevelt Building.

COLORADO

Osteopaths Excluded from County Hospital Staff.—The board of commissioners of the county of Weld, Colorado, adopted a resolution restricting the membership on the staff of the county hospital to physicians and surgeons who are graduates of medicine from regularly accredited colleges in good standing. R. W. E. Newton, an osteopath, on his own behalf and on the behalf of other osteopaths, brought action in the district court to compel, by injunction, the county commissioners to admit him, and other osteopaths, to practice in the hospital. From an adverse decision of the district court, Newton appealed to the supreme court of Colorado where the decision of the district court was upheld. The supreme court held that the board of commissioners had sole authority over the operation of the hospital and that the resolution was neither unreasonable nor arbitrary. The court said that the resolution could be justified on the ground that if the right to practice in the county hospital was accorded to all the different schools of medicine there would be constant jealousy and dissatisfaction between the different schools which might greatly lessen the usefulness of the public hospital. The supreme court, in reaching its decision, cited the case of Hayman v. Galveston, 273 U. S. 414, in which the Supreme Court of the United States held that the board of commissioners of the city of Galveston could lawfully exclude osteopaths from a hospital maintained by the city.

CONNECTICUT

Dr. Spielmeyer Lectures at Yale.—Yale University, New Haven, announced, November 25, that Dr. Walter Spielmeyer, who succeeded the late Emil Kraepelin as head of the Psychiatric Research Institute in Munich, will spend a month at Yale University School of Medicine, where he will lecture and aid in organizing the division of neuropathology in connection with the human welfare group at Yale. The subjects of his lectures will be (1) relationship of brain changes to vasomotor disturbances; (2) epidemic encephalitis; (3) significance of local factors in brain lesions. Dr. Spielmeyer's principal address in this country will be given at the annual meeting of the Association for Research in Nervous and Mental Diseases in New York where he will discuss anatomic conditions associated with epilepsy. He gave an address at the dedication of the New York State Psychiatric Institute at the Medical Center early in December and later will speak in Boston, Iowa City and Minneapolis.

DISTRICT OF COLUMBIA

Society News.—The Medical Society of the District of Columbia, George Washington University and the New York Avenue Presbyterian Church jointly will hold a memorial service, December 8, in memory of the late Dr. Charles Richardson, a member of the Board of Trustees of the American Medical Association.——Drs. Ray Lyman Wilbur, secretary of the interior, and Merritte W. Ireland, surgeon general of the U. S. Army, gave addresses in New York, November 7, at the opening of the campaign to raise $6,000,000 to build the Gotham Hospital.

Health Survey of Washington.—Under the sponsorship of the council of social agencies, representatives of the American Public Health Association are about to undertake a health survey of the city of Washington. The Community Chest had appropriated, it is reported, $12,000 for the survey. The chairman of the health committee of the council of social agencies is Dr. Paul Preble of the U. S. Public Health Service. The survey, which is to be undertaken with the approval and cooperation of the local health department, will be similar to surveys which have been made in other cities.

ILLINOIS

Chicago

Society News.—Dr. Joseph B. De Lee will present a "motion picture with movietone in eight reels on laparotrachelotomy, low cervical cesarean section," before the regular meeting of the Chicago Gynecological Society at 50 East Erie Street, December 19, at 8 o'clock.——The dental clinic at Cook County Hospital celebrated its sixth anniversary, November 25. Children during the last year made about 21,000 visits to the dental clinic. Among these were about 2,200 who came for the first time.——About 500 bookplates, lent by American and European physicians and medical institutions, are on display daily at the library of the University of Illinois College of Medicine, 1817 West Polk Street.——The Chicago Medical Society was addressed, December 4, at a joint meeting with the state and city societies of industrial medicine and surgery by Drs. Peter A. Bendixen, Davenport, Iowa, on fracture of the forearm and wrist, and Clarence W. Hopkins on multiple fractures of the pelvis with dislocation of the head of the femur.——The Chicago Surgical Society was addressed, December 6, by Drs. Willis D. Gatch, Indianapolis, on "Clinical Application of Recent Research Work on Intestinal Obstruction"; Kellogg Speed and Dean L. Rider on "Experimental Bone Healing After Parathyroidectomy"; Dallas B. Phemister and Eloise Parsons, "Shock and Hemorrhage in Injuries of the Extremities," and Sumner L. S. Koch on "Acquired Contractures of the Hand."——The Chicago Pathological Society will be addressed, December 9, by Dr. M. P. Neal and Max M. Ellis, Ph.D., Columbia, Mo., on "Experimental Fat Necrosis and Isolation of a Causative Factor"; Paul J. Breslich, "Squamous Cell Carcinoma of the Trachea," and Milton G. Bohrod, "Polypoid Pericarditis."——The department of medicine of the University of Chicago has beds set aside in the Albert Merritt Billings Hospital for the study of pneumonia to which patients may be admitted free of charge if their financial circumstances warrant. The department of medicine holds clinical conferences at 4:30 p. m., Wednesdays, at the University of Chicago Clinics; members of the Chicago Medical Society are cordially invited.——The University of Chicago will dedicate the George Herbert Jones Laboratory for graduate research work in chemistry, December 16-17, at which time there will be open house and a scientific program on the general topic "Some Present and Future Problems of Chemistry."

IOWA

Twenty-Three Counties "Over the Top."—Every eligible physician in twenty-three counties in the state of Iowa is a member of his local county medical society, and 90 per cent of all eligible physicians in the state belong to their county and state medical societies. There are 3,001 licensed physicians residing in Iowa.

Typhoid at Clinton.—The outbreak of typhoid at Clinton amounted to seventy-four cases and six deaths on November 28, at which time no new cases had been reported for seventy-two hours. An investigation by the state health department indicated that the probable source was improperly sterilized bottles at a local dairy which practically all of the victims patronized.

Seven Societies Have Contracts with County Supervisors.—Seven Iowa component medical societies have contracts with the county supervisors to care for the indigent sick for a fixed annual sum. The extent of the service varies from the care of bedside cases only up through a number of stages to a complete service including major operations. One county has only eleven physicians, and the largest one a hundred members in the county society. The amount of the annual contract is $1,600 in two smaller counties, and $12,000 in a larger county. Fifteen years' experience indicates that the society thus does away with the political and economic difficulties commonly connected with the sick poor, and places the profession in a favorable light. It is a great factor in upbuilding the county society. In one county the annual income is divided among the members on a pro rata basis of service rendered, but in the others the funds are used for the advancement of organized medicine.

MASSACHUSETTS

Society News.—A demonstration cancer clinic was held at the general hospital, Lawrence, November 19, to which physicians were invited to accompany their patients. The consultant was a member of the faculty of Harvard University Medical School, Boston.——The New England Obstetrical and Gynecological Society held its first meeting in Boston, November 20, which consisted of a series of clinics at several hospitals and an assembly and luncheon at the University Club. In the evening at the dinner, the president, Dr. Charles E. Mongan, was toastmaster, and addresses were presented by Drs. Robert B. Greenough and Morris Fishbein, Chicago, editor of THE JOURNAL.

Personal.—Dr. Francis D. Donoghue, medical adviser to the Massachusetts Industrial Accident Board, has been appointed by the mayor as head of the new board of commissioners of school buildings for Boston which replaces the existing schoolhouse commission. Dr. Donoghue is said to have been appointed by President Coolidge to represent his country at the last International Congress of Accidents and Occupational Diseases.——Dr. Robert B. Greenough, assistant professor of surgery, Harvard University Medical School, has been elected chairman of the board of directors of the American Society for the Control of Cancer.——Stephen L. Maloney, who had been connected with the Boston City Health Department for about thirty-four years, and since 1912 was secretary, was stricken in his office with heart disease, October 11, and died soon after being removed to his home.——Dr. Charles B. Mack, recently with the American Public Health Association, has been appointed district health officer in the Boston metropolitan area.

Appointments and Resignations at Harvard.—The following changes in the faculty at Harvard University Medical School, Boston, were reported, October 16:

RESIGNATIONS

(EFFECTIVE, SEPTEMBER 1)

Norman M. Hunter, M.D., assistant in laryngology.
James L. Stoddard, M.D., research fellow in medicine.

APPOINTMENTS

(FOR ONE YEAR)

Heinrich Brugsch, M.D., assistant in medicine.
John M. Flynn, M.D., assistant in medicine.
Robert F. McGrath, M.D., assistant in medicine.
Frank R. Hopkins, M.D., assistant in pediatrics.
Arthur R. Turner, M.D., assistant in pediatrics.
Gaylor P. Coon, M.D., assistant in psychiatry.
Samuel A. Robins, M.D., assistant in roentgenology.
Daniel J. Duggan, M.D., assistant in surgery.
Jacob Fine, M.D., assistant in surgery.
Lyman G. Richards, M.D., assistant in surgery.
Clyde W. Holland, M.D., research fellow in medicine.
Leone C. McGregor, M.D., research fellow in pathology.
Frederick M. Spencer, M.D., research fellow in pediatrics.
Zenon Bacq, M.D., research fellow in physiology.
William Raab, M.D., research fellow in physiology.
Oliver S. English, M.D., research fellow in psychiatry.
Louis K. Diamond, M.D., assistant in pediatrics (nine months).
Frank Brostrom, M.D., teaching fellow in orthopedic surgery (four months).
John B. McKenna, M.D., assistant in neuropathology (ten months).

NEW JERSEY

Society News.—The Bergen County Medical Society was addressed by Dr. John H. Wyckoff, Jr., New York, October 16, on "The Rationale of Digitalis Therapy."——Dr. Percy S. Pelouze, Philadelphia, addressed the Cumberland County Medical Society, recently, on "Common Bladder Symptoms Encountered in General Practice."——The Gloucester County Medical Society was addressed, recently, by Ivor Griffith of the Philadelphia College of Pharmacy on "Hazards of Poisonous Foods."——The Passaic County Medical Society increased its dues to $20 a year at the regular meeting, October 10.——The Burlington County Medical Society presented a pageant, November 20, on its one hundred and fiftieth anniversary, representing a review of medical history. Members took the part of men who had made medical discoveries (THE JOURNAL, March 9, p. 814).

Chiropractors Cannot Legally Use Electricity in Treatments.—The Supreme Court of New Jersey recently reversed the finding of the lower court in Bergen County in the case of the state board of medical examiners versus Harry DeBaun, a chiropractor. DeBaun had been charged with practicing medicine without a license and the first judicial district court, the judge sitting without a jury, found him not guilty. On appeal, the supreme court reversed the finding of the lower court. DeBaun had treated a patient by means of electricity, for which he was paid a fee. The supreme court said that electricity is a dangerous instrumentality unless restrained within proper limitations, and that its use as applied to the human body should be under the direction of authorized persons. Its use in the case for which Chiropractor DeBaun was prosecuted was a part of the art of healing, and in no wise, the court said, involved the function of hand manipulation which, let it be said, is supposed to be the chiropractors' method of treatment. The court was unable to conceive of any hypothesis in this case on which the use of electricity in the manner stated is part of the practice of chiropractic. The actions of Chiropractor DeBaun, therefore, in treating the patient as stated were considered by the court as contrary to the prohibitory provisions of section 10 of the 1921 act.

NEW YORK

Personal.—Dr. Joseph Eastman Sheehan, professor of plastic surgery, New York Post Graduate Medical School, was decorated, November 22, by the ambassador from Belgium with the insignia of the Officer of the Crown of Belgium.——Dr. Peter J. Johnson, deputy medical superintendent, Farm Colony, Seaview, Staten Island, has been appointed superintendent of the Cumberland Hospital, Brooklyn.

Former Lion Tamer Charged with Illegal Operation.—Birt Birkett, said to be a citizen of England and at one time a lion tamer, was brought back to Babylon, recently, from Detroit for a hearing and inquiry into the death of a woman which occurred, July 10, on whom he is said to have performed an illegal operation. Birkett, before fleeing from Babylon, managed a gasoline station. Formerly, he is said to have been a physician's chauffeur.

Society News.—An anonymous gift of $200,000 has been made to the Cornell Alumni Corporation as the beginning of the $1,000,000 pension fund which will eventually make up the deficit of the Carnegie Pension Fund and be available for other members of the Cornell faculty who do not now come under the scope of the Carnegie plan. It was reported to the alumni corporation that another similar gift was in prospect. ——At the invitation of the Suffolk County Medical Society and the county board of health, Dr. Allen W. Freeman, Baltimore, recently made a study of health conditions and facilities in Suffolk County similar to the study he made in Steuben County last spring. Dr. Freeman was temporarily attached to the staff of the committee on tuberculosis and public health of the State Charities Aid Association.

New York City

Plan to Finance Illness of the Middleman.—Matthew S. Sloan, president of the New York Edison and affiliated electrical companies, announces a campaign to raise $6,000,000 to build and endow the Gotham Hospital, for which a site has been obtained at One Hundred and Seventh Street and Central Park West. The Gotham Hospital, which is to be solely for the "economic middle class," will not receive charity patients nor will it cater to the rich. There are several items in the so-called Gotham plan intended to insure the middle class the best treatment within its income. One is to set aside $3,000,000 of the amount being raised to constitute a "patients' trust fund," the income from which will be used to pay the deficit between what the patient can afford to pay and what his care costs the hospital. The hospital will charge from $3 to $5 a day in comparison with the charges in private hospitals, which are said to average now from $7 to $22 a day. Other cost reducing features of the Gotham plan are (*a*) group nursing, whereby one nurse can serve more than one patient; (*b*) a fixed fee for hospital "extras," such as the operating room, laboratory tests and special drugs; (*c*) the grading of the physician's fee in accordance with the patient's accommodations in the hospital, and (*d*) the offering of a complete physical examination at a moderate fixed fee.

Fiftieth Anniversary of Hospital Fund.—In celebration of the fiftieth anniversary of the United Hospital Fund, organized to aid the sick poor of New York, a campaign will open, December 2, to raise $1,000,000 to help the fifty-nine member hospitals. Distributions to these hospitals by the fund in the last year amounted to $650,000, the largest amount distributed since the World War. The United Hospital Fund started as the Saturday and Sunday Association to collect funds for the sick poor and adopted its present name in 1916. It is one of the five beneficiary organizations under deed of trust executed by the Laura Spelman Rockefeller Memorial Fund when it merged with the Rockefeller Foundation; $2,500,000 was given to the community trust with the provision that the income be made available to the five beneficiaries, and that in ten years the principal under certain conditions be divided among them. The United Hospital Fund announced, November 16, that the first of two fellowships in orthopedic surgery at the Hospital for Joint Diseases, to establish which Frederick Brown recently gave $100,000, has been awarded to Dr. David Saskin, a member of the house staff for two years. He will continue the research in joint diseases which he began abroad under the Henry W. Frauenthal Travel Scholarship.

Society News.—Dr. Francis H. Adler, Philadelphia, addressed the section on ophthalmology of the New York Academy of Medicine, November 18, on "Metabolism of Sugar in the Eye," with lantern slides. The section on genito-urinary surgery was addressed, November 20, by Dr. Edward L. Keyes on "Prospects of the Prostatic."——The Italian Medical Society was addressed, November 11, at the Kings County Medical Society Building by Drs. Ralph I. Lloyd on "Diagnostics of the Bulging Eye," and Fortunato A. Diasio on "General Survey of Dermatology for the Practitioner of Medicine."——President Butler of Columbia University announced, November 2, that 163 gifts and bequests had been received in recent weeks, totaling nearly $1,000,000. Most of them were unsolicited and represented, he said, the increasing tendency of persons to contribute to the great work the university is doing for learning, for the advancement of science and for public service. Among these gifts were some to carry on research on medical problems.——The International Medical Club gave a dinner, October 31, at the New York Athletic Club; the guests of honor were Dr. R. A. Boero, Argentina; Dr. Paul Martin, Switzerland; Prof. L. Michaelis, Rockefeller Institute; Dr. Carl Pototzky, Germany, and Prof. Ryoso Tsunerka, Japan. Dr. Jacques W. Maliniak presided; Drs. Fred H. Albee spoke on "International Medical Contacts on the Islands of the Pacific"; Richard Kovacs, "International Medical Club on the Pacific Coast," and William S. Bainbridge, the toastmaster, on "Glimpses of Medical Europe from the Air."——The New York Polyclinic Medical School and Hospital is preparing to erect a ten story building for an outpatient department on a site adjoining the hospital. This will also increase the bed capacity of the wards by 150 beds. The new building will be devoted to graduate teaching.——The National Child Labor Committee will hold its twenty-fifth anniversary conference at the Hotel Roosevelt, December 16-17; the governor is scheduled to speak on "The Function of Government in Child Protection."——The United Hospital Fund announces that electrocardiographs are now used in nine New York hospitals.——The International and Spanish Speaking Association of Physicians, Dentists and Pharmacists held its thirteenth meeting, November 22, at the Pythian Temple. Among the speakers were Dr. Ernst Friedrich Müller of the University of Hamburg; Dr. Edward H. Hume on "Ancient and Modern Practice of Medicine in China," illustrated with lantern slides, and Dr. Henry H. Rusby, dean of the Pharmacy College of Columbia University, on "Some Tendencies in Modern Medicine." The guest of honor was Dr. Chaw-Thu-Wu, ambassador of China.——The Bronx County Medical Society was addressed, November 20, by Drs. Henry L. Bockus, Philadelphia, on "Chronic Duodenal Stasis"; John B. Carnett, Philadelphia, on abdominal pain, and William Bates, Philadelphia, on "Demonstration of Pain of Abdominal Parietes."——Dr. Ernest A. Gauvain has been elected president of the Brooklyn Dermatological Society for the ensuing year.——Dr. G. Canby Robinson, director of the new medical center being constructed by New York Hospital and Cornell Medical College, has been made president of the Harvey Society for the ensuing year.——The Kings County Medical Society was addressed, November 29, by Dr. William P. Murphy, Boston, on "Present Status of the Treatment of Anemia."——At a recent meeting of the Medical Society of the County of Queens at Bayside in conjunction with the annual meeting of the Queensboro Tuberculosis and Health Association, Dr. William J. Lavelle, president of the medical society, stated that nowhere else is the spirit of cooperation between voluntary health agencies and the medical profession better exemplified than in that which exists between these two organizations for the common purpose of making the community healthier.——The Medical Foundation, of which Dr. Frederick M. Allen is director, announces that it has acquired the Medical Arts Sanatorium at 57 West Fifty-Seventh Street, New York..

PENNSYLVANIA

Society News.—The Clearfield County Medical Society was addressed, November 21, by Dr. Samuel Calvin Smith, Philadelphia, on "Clinical Significance of the Irregular Pulse."——The Indiana County Medical Society was addressed, November 21, by Dr. Robert L. Anderson, Pittsburgh, on urologic diagnosis, and Dr. Frederick M. Jacob, Pittsburgh, on dermatologic diagnosis.——Dr. Frank E. Adair, New York, addressed the Lehigh County Medical Society at Allentown on cancer of the breast.

Philadelphia

Dr. Opie Awarded Gerhart Medal.—The Philadelphia Pathological Society has awarded the William Wood Gerhart Medal to Dr. Eugenie L. Opie, professor of pathology at the University of Pennsylvania School of Medicine, who delivered the Gross lecture before the society, November 14, on "Occurrence and Spread of Tuberculous Infection."

Personal.—Dr. James P. Sands has been appointed superintendent of the Philadelphia Hospital for Mental Diseases at Byberry to succeed Dr. Everett S. Barr, who resigned to assume charge of the Chester County Hospital.——Dr. Gustavus C. Bird has resigned as professor of roentgenology at Temple University School of Medicine.——The state board of pardons refused at Thanksgiving time to pardon Dr. Thomas Gilchrist, who is serving a three year sentence for the illegal possession of opium. Dr. Gilchrist still has about two years of his term to serve.——Dr. Sigmund Leon Gans has been reelected president of the Physicians' Motor Club of Philadelphia.

Society News.—Dr. Laurence D. Redway, New York, addressed the ophthalmologic section of the College of Physicians of Philadelphia, November 21, on "Instantaneous Color Photography of the Fundus of the Living Human Eye"; Dr. Eli Moschcowitz, New York, addressed the section on general medicine, November 25, on "Nature of Graves' Syndrome."——The American College of Surgeons will hold its annual meeting next year in Philadelphia, Oct. 13-17, 1930.——Dr. Albert Strickler has been elected president of the clinical society, organized recently at the Skin and Cancer Hospital.——The Philadelphia Child Guidance Clinic was addressed, November 18, by Judge Joseph M. Proskauer of the Supreme Court of New York on psychiatry as a practical civilizing force; he stressed the findings of child guidance clinics as applied to the courts dealing with juvenile delinquents.——A reception was tendered by the medical alumni of Temple University, November 23, in honor of the recently elected members of the major faculty; Dr. Chevalier Jackson was guest of honor.——The Philadelphia Urological Society was addressed, November 25, by Dr. Carl J. Bucher and Mr. Francis H. Scheetz on the medicolegal aspects of gonorrhea.——The Alumni Society of the Philadelphia Dental College and the Dental School of Temple University passed resolutions, November 25, on the death of their friend and benefactor, Dr. H. Augustus Bacon, making public expression of sorrow at his loss. Dr. Bacon was well known at the dental college for thirty years.

Bureau for Study of Tumors.—Further details concerning the "tumor registry," which was described in THE JOURNAL, August 3, p. 389, are of interest, although the organization is in the formative stage. Membership is limited to physicians who are actually concerned with the study and treatment of tumors: pathologists, surgeons, gynecologists, dermatologists and roentgenologists. To date the invitation has been extended only to pathologists through whom the specimens for the bureau are to be assembled, but as soon as arrangements have been made with this group the others will be taken up. The registry is doing actual work in its quarters in the Lankenau Hospital. The opportunities offered to members include the studying of microscopic slides, or the comparing of sections of some rare tumor which the physician may have with others in the bureau, the opinion of the bureau with respect to any tumor being given without charge; a follow-up service for cases that have come under the members' observation, and a cooperative system of confidential exchange of follow-up information with individuals and hospitals. The central theme of the organization is to be mutual helpfulness and earnest cooperation. Representatives of the National Research Council in Washington have inquired whether similar bureaus should not be established in other cities. It is hoped that in time enough data will be assembled to contribute to the solution of some problems concerning tumors. The idea of establishing a central bureau for the study of tumors originated, it is said, with Dr. Joseph McFarland about two years ago. It will be possible when the organization is fully established for a member to go to one place and find all the data and specimens which the city has provided over a period of years and to learn something about the patient before his physician saw him, how the tumor was treated and the subsequent course of events.

TEXAS

Health at San Antonio.—Telegraphic reports to the U. S. Department of Commerce from sixty-two cities with a total population of about 29 million, for the week ending November 23, indicate that the highest mortality rate (20.4) was for San Antonio, and that the mortality rate for the group of cities as a whole was 12. The mortality rate for San Antonio for the corresponding week last year was 14.6, and for the group of cities, 12.7. The annual mortality rate for sixty-two cities for the forty-seven weeks of 1929 was 12.9, as against a rate of 12.3 for the corresponding weeks of 1928. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large negro population may tend to increase the death rate.

GENERAL

News of Epidemics.—The outbreak of smallpox in Crawford County, Ohio, November 14, amounted to forty-three cases, four of which were in the city of Crestline.——Nineteen cases of diphtheria had been reported in Granville County (N. C.) up to November 11.——Forty-one cases of smallpox were reported present in Galion, Ohio, November 11.

International Pediatric Congress.—Swedish pediatricians have decided to issue invitations to an international pediatric congress in Stockholm, August 17-20, 1930. Those desiring to contribute papers should address the Second International Pediatric Congress, Stockholm, Sweden, before March 1. The admission fee, the *Canadian Medical Association Journal* says, will be twenty Swedish crowns (about $5). The chairman of the committee of the congress is Dr. Isak Jundell, professor of pediatrics, and the secretary, Dr. Nils Malmberg.

Radiological Society Awards Medal.—The Radiological Society of North America at its fifteenth annual meeting in Toronto, December 2, awarded its annual gold medals to Drs. Joseph Colt Bloodgood, clinical professor of surgery at Johns Hopkins University School of Medicine, Baltimore, and Russell L. Haden, professor of experimental medicine, University of Kansas School of Medicine. Dr. Bloodgood was given the award for his study of bone malignancy, and its diagnosis and treatment by means of the roentgen ray and radium, and Dr. Haden for a roentgen-ray study of dental infection.

Society News.—At the annual meeting of the American Association of Railway Surgeons, November 6-8, Chicago, Dr. Ross A. Woolsey, St. Louis, was elected president and Dr. Louis J. Mitchell, Chicago, secretary. The next annual session will be at Chicago, November 5-7, 1930.——Surg. Gen. Hugh S. Cumming of the U. S. Public Health Service was elected president of the Southern Medical Association at the annual meeting in Miami, Fla., November 22, and Mr. C. P. Lorenz, Birmingham, Ala., reelected secretary. Louisville, Ky., was chosen for the next annual meeting place. Following the meeting about 300 members of the association arrived in Havana, Cuba, November 24, and were guests of Dr. Francisco Maria Fernandez, Cuban secretary of sanitation, at a luncheon.

Fund Establishes Division of Public Health.—A new program in the health field will be inaugurated by the Commonwealth Fund, New York, January 1, with the establishment of a division of public health. The director will be Dr. William J. French, formerly director of the child health demonstration carried on by the fund at Fargo, N. D. The new program will be centered in two or three states where, cooperating with state health departments, will be established a field unit to promote rural health service and to develop adequate health service in two rural districts. The Commonwealth Fund will offer in these states each year fifteen scholarships for graduate work by rural physicians and will help a leading medical school to set up courses in preventive medicine and facilities for graduate study. Scholarships or loan funds will be provided for a group of medical students who undertake to go into rural practice and special scholarships will be arranged for public health nurses and for teachers who wish to study methods of health education. The Commonwealth Fund will also help a normal college in each state to establish courses in health education.

"Loan Collection" for Ophthalmologists.—For eight years the three national ophthalmologic societies have been cooperating with the Army Medical Museum in Washington, and urging their membership to send interesting pathologic material to the museum for section and study; in such cases the donor receives a report of the study and sections and photo-

graphs if desired. The Army Medical Museum now has more than 6,000 items and from this material have been selected 100 well studied, representative sections which have been gathered into a "loan collection," embracing the slides and complete clinical and histologic descriptions. Twelve "loan collections" are available at the Army Medical Museum in Washington and may be borrowed by members of any of the three national ophthalmologic societies. To insure the return within two months of this material unbroken, a deposit of $25 is required, but the deposit is returned on return of the collection. If slides are broken they are charged for at the rate of $2.50 each. Application for the loan of this pathologic material should be made to the curator, Army Medical Museum, Washington, D. C.

Pan-American Medical Association.—The second meeting of the Pan-American Medical Association will be held at Panama City, January 30-February 3, under the presidency of Dr. Francisco María Fernández. The opening session will be addressed by the secretary of state of the Republic of Panama, Mr. L. E. Clement; by Dr. Nicolás A. Solano, president of the local committee; by Dr. Lewellys F. Barker, Baltimore, vice president of the association, and by Dr. Fernández. The next morning a visit will be made to the Santo Tomás Hospital, where there will be clinics and a luncheon followed by a meeting for the presentation of papers at the Gorgas Memorial Institute, and a reception in the evening at the presidential palace. The next day will be given over to visits to the Gorgas Hospital and a scientific session at the institute, and the following day to visits to the tuberculosis hospital and another scientific session. The government of Panama will give a banquet, February 2. There will be surgical demonstrations at the Santo Tomás Hospital, February 3, and at 2 p. m., the special train leaves for Cristóbal, from where the boat departs at 4 p. m. for Havana and New York. Among other speakers from the United States will be Drs. Chevalier Jackson, Philadelphia; Charles Mayo, Rochester, Minn.; Lawrason Brown, Saranac Lake, and Fred H. Albee, New York. Additional details can be had from Dr. Conrad Berens, Jr., executive secretary, 30 East Fortieth Street, New York.

Income of College Teachers.—The General Education Board of the Rockefeller Foundation, New York, has made studies of the earnings of college teachers. The data presented in *Science* are from reports from 302 colleges or departments of universities, representing all parts of the country, forty of which were women's colleges. The data cover the salaries of more than 15,000 liberal arts teachers, ranking from professors to instructors, for the year 1926-1927. The average annual salary of these teachers was $2,958. It was highest in the New England states and lowest in the Southern states. The average salary paid professors was $3,798, and instructors, $1,941. The average again varied with the size of the school from $4,573 for a professor in a class A school to $2,748 in a class C school. Mr. Frank P. Bachman of the General Education Board further shows that the highest average salary was in law schools and the lowest in music schools. Of the 15,361 teachers in the 302 colleges reporting, 92 per cent receive salaries of less than $5,000, and only 0.01 per cent, or sixteen teachers, receive $10,000 or more. Teachers supplement their regular earnings in different ways. Supplementary work consists of writing, extra teaching, lectures, consulting, and miscellaneous activities. The supplementary earnings of 7,072 teachers amounted to 24 per cent of their regular annual salaries. The supplementary earnings varied from less than $100 to $10,000 or more, the median being $522. The most important factor, apparently, compelling teachers to supplement their regular incomes is family responsibility, for among 7,776 married teachers, 77 per cent supplemented their regular salaries by other work, while among 3,927 single teachers only 47 per cent did supplementary work. The study shows, Mr. Bachman says, that the salaries of teachers in the colleges of arts, literature and science have increased about 30 per cent from 1919-1920 to 1926-1927. The average annual salary of teachers has risen from $1,724 in 1914-1915 to $2,958 in 1926-1927. Favorable as their present financial status appears in comparison with the past, he says, present salaries remain inadequate.

Deaths in Other Countries

Georges Eugène Benjamin Clémenceau, premier of France during the World War, and for a time, many years ago, a resident of the United States, died in November, aged 88. Dr. Clémenceau in 1865 published a thesis entitled "De la génération des eléments anatomiques," a copy of which is in the John Crerar Library, Chicago.

Government Services

Army Orders

Col. Carl R. Darnall was assigned to duty at the Army Medical Center, Washington, D. C., effective November 10.——Col. Jere B. Clayton, San Francisco, will proceed to his home and await retirement for the convenience of the government.——Capt. Earl F. Greene, medical administrative corps, was ordered home on or about October 28 to await retirement for the convenience of the government.——Major Reeve Turner on completion of his tour of foreign service in the Canal Zone will be assigned to duty at Governors Island, New York, at the branch of the disciplinary barracks, relieving Major Frank H. Dixon, who will sail about April 18 for the Canal Zone for duty.——Major Charles K. Berle is relieved from duty at Walter Reed General Hospital, Washington, D. C., and will sail about January 17 for the Philippine Islands.——Major John P. Fletcher will proceed from Carlisle Barracks to the Army and Navy General Hospital, Hot Springs National Park, Ark., for observation and treatment.——Capt. Floyd V. Kilgore was relieved from duty at Walter Reed General Hospital, effective January 10 and will proceed to Jefferson Barracks, Mo., for duty.

New Public Health Officers

The following doctors of medicine have been commissioned assistant surgeons in the regular corps of the U. S. Public Health Service to fill vacancies due to resignations: Dr. William F. Ossenfort, Centaur Station, Mo.; Dr. Oswald F. Hedley, Danville, Va.; Dr. James T. Jackson, Leesburg, Va.; Dr. Raymond Evans, Cincinnati; Dr. Walter P. Griffey, Clinton, Ky.; Dr. Joseph O. Dean, Omaha; Dr. Harold M. Hand, San Francisco; Dr. Ivan W. Steele, Talmadge, Kan.; Dr. Kent Nelson, Minneapolis; Dr. Harold D. Lyman, Port Townsend, Wash.; Dr. Vane M. Hoge, Rogersville, Pa.; Dr. Charles K. Rose, Jr., Bath, Pa.; Dr. Frank F. Thweatt, Jr., Petersburg, Va., and Dr. Frederick W. Kratz, Grand Rapids, Mich.; Asst. Surg. Walter P. Griffey has been relieved from duty at the Marine Hospital, Chicago, and assigned to the Marine Hospital, Evansville; Surg. Friench Simpson has been relieved from Ellis Island and assigned to Oslo for duty in the American consulate office; Surg. Charles W. Vogel has been relieved from duty at Ellis Island and directed to assume charge of immigration work at Calais, Maine, from where Surg. Carl Ramus has been relieved and will assume charge of immigration work at East Boston, Mass.

Examination for Entrance to Army Medical Corps

The next examination for appointment in the medical corps of the regular army will be January 20-24. The general requirements for eligibility are that candidates for commission must be between 23 and 32 years of age and graduates of an acceptable medical school, with at least one year's internship subsequent to the completion of a four years' medical course, or an equivalent in professional experience. They must pass a physical and professional examination. Their moral character and general fitness for military service will be considered by the examining board. The professional examination will cover anatomy, surgery, practice of medicine, physiology and pathology, obstetrics and gynecology, materia medica and therapeutics. Diplomates of the National Board of Medical Examiners are exempt from the medical examination, but must pass the physical. The examination will be held at army posts and in large cities throughout the country. Any physician who fulfils these requirements and desires to take the examination should communicate promptly with the surgeon general of the army, Washington, D. C., who will furnish the necessary application blanks, and any further information desired.

Annual Report of Surgeon General of Army

The health of the army during the year 1928 is regarded as quite satisfactory in the annual report of the surgeon general. The average daily strength of the army was 134,380 officers and enlisted men, of whom 87,799 were in the United States and the remainder in the Philippine Islands, Hawaii, Panama, China and Porto Rico. There were 62,018 enlistments during the year 1928, a matter which affects health reports, as recruits are susceptible to the change of environment which enlistment necessitates and frequently bring with them from their home communities infectious disease. Surgeon General Ireland notes the remarkable progress in the last half century in conserving the health of the army, especially in the intestinal group of diseases, the insect-borne group, venereal diseases and smallpox

and diphtheria; but there has been little progress in the group of respiratory diseases, and these are responsible for the increase of sickness in the army in 1928 from an admission rate of 654.64 in 1927 to 710.91 per thousand. The annual death rate in the army from disease was 2.30, as compared with 2.35 in the previous year. The death rate from disease has been above the average for the decade for the last three years because of epidemics of influenza and one of cerebrospinal meningitis. The leading cause of death from disease was tuberculosis. The leading cause of death from traumatism was suicide. Fifty-five officers were retired on account of disability, as compared with seventy-six in the previous year. The number of enlisted men discharged on account of disability was 2,189 as compared with 2,473 in 1927; of the former 1,174 were discharged for conditions contracted not in line of duty, and seventy-four for disability due to misconduct. The leading cause of retirement among officers was tuberculosis and among the total enlisted personnel, dementia praecox. Time lost from duty from all causes (not including the nurse corps) amounted to 1,484,387 days. The leading cause of noneffectiveness from disease was gonorrhea; the admission rate from venereal disease was lower than it was in 1927; this was the eighth consecutive year that the rate from venereal disease for the total army has been lower than the rate for the preceding year. The admission rate for malaria was 8.38 per thousand as compared with 6.73 in 1927; this was the first year since 1921 that the malaria rate has been higher than that for the preceding year. In 1903 the admission rate for malaria was 201.17. The admission rate for alcoholism was not only lower but was the lowest it has been since 1921. The total number of military personnel treated in army hospitals and dispensaries was 96,224, the average number hospitalized each day being 6,400. The total cost of operation of the general hospitals including the station hospital at Fort Sam Houston was $5.27 per patient day, including the construction and repair of buildings, and the maintaining of roads, walks and drains, but excluding new construction authorized under special legislation. The medical corps comprised 916 officers on active duty, June 30, 1929. There were twenty-six resignations from the corps during the year, seventeen retirements, three discharges, four deaths, and thirty-four appointments, a net loss of sixteen officers; there were ten officers at home awaiting retirement or acceptance of resignations, making a total of seventy-seven vacancies, the largest number since 1920. The principal factor among losses in the corps was resignations. The surgeon general points out that the reason for the resignation of officers is that they are able to do much better in civil life from a financial standpoint. He says that the only thing which would prevent resignations from continuing on a large scale is an increase of pay.

Examination for Entrance to Public Health Service

An examination of candidates for commission as assistant surgeon in the regular corps of the U. S. Public Health Service will be held, January 27, in San Francisco, New Orleans, Chicago and Washington, D. C. Requests for permission to take the examination should be addressed to the surgeon general, U. S. Public Health Service, Washington, D. C. Candidates must be not less than 23 and not more than 32 years of age, graduates of a reputable medical college, with one year's hospital experience or two years' professional practice. They must pass oral, written and clinical tests before a board of officers and undergo a physical examination. Successful candidates will be recommended for appointment in the regular service by the President.

Changes of Stations in Navy

Lieut. Comdr. William W. Hall to navy hospital, San Diego, Calif.; Lieut. Comdr. Jesse W. Smith, relieved from all active duty, about November 2, and ordered home; Lieut. John T. O'Connell to navy medical school, Washington, D. C.; Lieut. Comdr. Ogden D. King to U. S. S. *Melville*, about December 1; Lieut. John M. Brewster to duty with Garde d'Haiti, Port au Prince, Haiti, about December 31; Lieut. Clyde W. Brunson to U. S. S. *Sirius*, about January 2; Lieut. George W. Cooper to Port au Prince, Haiti, about December 31; Lieut. Lloyd L. Edmisten to division 31, destroyer squadrons, battle fleet, about January 31; Lieut. John L. Farmer to navy hospital, San Diego, Calif., about February 8. Lieut. James Thomas Taylor's resignation is accepted, effective February 4; Lieut. (j. g.) James R. Fulton has been assigned to the navy hospital in New York City; Lieut. (j. g.) Wayland K. Hicks has been ordered to the submarine base, Canal Zone; Lieut. Comdr. Philip H. MacInnis has been assigned to the fifteenth naval district, Canal Zone; Lieut. Comdr. Ernest A. Daus to the Asiatic station; Lieut. Henry M. Walker to the navy medical school, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 9, 1929.

The Vaccinia Variola Flocculation Test

In 1925 Dr. M. H. Gordon, working in the service of the Medical Research Council, reported that it was possible to detect the virus of variola, of either the mild or the severe type, by the flocculation of suspensions made from the dry crusts of the disease. The appearance of smallpox in Dundee in 1927 gave an opportunity to Dr. Burgess, health officer, in collaboration with Professor Tulloch and Dr. Craigie of the department of bacteriology in the University of St. Andrews, to try the test on a large scale. Their report, which has just been issued by the Medical Research Council, is the first communication on this test and fully confirms its value. The test was applied in ninety-three cases —fifty-three of smallpox and the remainder of chickenpox or other eruptions likely to give rise to a suspicion of smallpox. The cases of smallpox were with one exception of the mild type—variola minor or alastrim—and many of them gave difficulty in diagnosis. The laboratory results were carefully collated with clinical and epidemiologic facts and it was found that the method supplies a test of diagnostic precision and is relatively simple. Notably at the outbreak of an epidemic it has definite practical utility.

The rationale of the test is based on the view that the virus of vaccinia is essentially the same as that of variola, vaccinia having developed a special pathogenicity for bovines, variola for man. The conversion of variolous material into vaccinia has been carried out many times and the whole history of vaccination shows that the two viruses are identical. Moreover, the immunologic identity of two disease-producing infective agents, each of which may show pathogenic peculiarities, is well recognized among visible bacteria. It is exemplified in the serologic identity of the human and bovine types of *Bacillus tuberculosis*, although these types show pathogenic differences to certain animal species. Other examples are the *Brucella abortus* of Bang, *Brucella melitensis* and *Bacillus mallei*. Thus a serum containing antibodies to vaccinia, demonstrable in vitro, might well react to variola in the same way that agglutinating serum prepared with the human type of *Bacillus tuberculosis* clumps suspensions of the bovine type.

The preparation of the flocculating serum is a highly technical process. In preparing the antigen the possibility of precipitin formation due to the introduction of foreign protein has to be excluded by inoculating rabbits with vaccinia derived from rabbits. The animal is killed on the seventh day and the inoculated area is cut out, dried rapidly in a vacuum, ground up and transferred to sterile test tubes, which are stored in a refrigerator. This material is used for the intraperitoneal or intravenous inoculation of rabbits from which the flocculating serum is obtained. The crusts to be examined are dried in vacuum over sulphuric acid at 37 C. and 0.02 Gm. is weighed out. This is triturated in a glass mortar and 0.2 cc. of distilled water is slowly added. Saline solution is then added to make 2 cc. The fluid is allowed to stand and may with advantage be frozen and thawed six times, after which it is centrifugated. The extract so prepared should be only faintly opalescent. In the examination of ninety-six specimens of crusts from ninety-three cases of smallpox, chickenpox and other conditions, the vaccinia flocculation test gave specific indications of diagnostic value.

The Cost of British Socialism

Mr. William Graham, president of the board of trade of the labor government, in addressing the University Labor Club at Oxford said that the greatest problem of British finance was the expenditure of nearly $3,500,000,000 of taxpayers' money

on unremunerative forms of relief for which there was nothing to show. It was difficult to be optimistic regarding British public finance under existing conditions. However, the labor party is bent on increasing the burden, though unfortunately it is only outvying the other parties in this. Speaking on a bill now passing through parliament extending the pensions of widows, orphans and old persons which will cost a further $25,000,000 a year, Sir Kingsley Wood, a minister in the late conservative government, gave the following as the cost of social services in various countries: Great Britain, $15 a head; Germany, $6; France, $3; Italy, $0.75; Belgium, $1. It is obvious why British industry cannot reduce costs so as to compete in the markets of the world.

Investigation of the Effect of Cold Storage on Meat

Dr. Ezer Griffith, F.R.S., of the National Physical Laboratory, and Dr. Vickery and Mr. Haddow of the Cambridge Low Temperature Research Station have gone to New Zealand to survey the cold storage of mutton and lamb from New Zealand. This team will on arrival be strengthened by New Zealand and Australian workers. The structure of muscle, the changes it undergoes after death, the meaning of rigor mortis, the chemistry of fat, and the effect of enzymes, bacteria and molds on fat rancidity are among the problems.

Sun-Bathing in Trains

Cornwall, being in the extreme south of England, enjoys more than the average sunshine and therefore is often described as the Cornish Riviera. The Great Western Railway announces that all the trains on its Cornish Riviera express service are fitted with glass permeable to the ultraviolet rays, so that passengers may obtain the full advantages of the sunshine when traveling. But as the cost of this glass is heavy, it is only those who make long nonstop journeys in the Riviera express that can look for the novel experience of sun-bathing in the train.

Antimony Poisoning from Enamel Jugs

The Folkestone Town Council has decided to call the attention of the ministry of health to an outbreak of food poisoning which occurred at a social gathering. Within a short time of taking refreshments twenty persons became ill. The assistant health officer found on investigation that the outbreak, which was mild, was due to lemonade which had been contaminated by antimony derived from the enamel jugs in which it was made. The council has reported to the minister of health that some action should be taken to prevent such enamel being used. In this instance the lemonade was made from lemons, the acid of which acted on the enamel.

Teaching the Laws of Health

Various means of health education, including lectures, propaganda, exhibitions and films, were discussed at the Health Education Congress, promoted by the Central Council for Health Education. The value of films was admitted but the cost of producing new films was large. It was stated that radio propaganda should be in small doses, as ninety-nine out of 100 ordinary listeners switched off when a "talk" came on. Miss Norah March of the Health and Cleanliness Council and the National Baby Week Council said that the colors which seemed to appeal most to the human eye were blue and yellow. According to a psychologic expert, human interest was retained longest by these colors. Red leaflets were sometimes repulsive.

Sir George Newman, chief medical officer to the ministry of health, said that the country spent not less than $100,000,000 a year in sickness and disablement benefit and the state treatment of disease. Much of this would be saved if people lived according to the principles of hygiene. We lost 26 million weeks from industry in 1928 because of sickness. English people required to be taught the way of personal health. They should be taught the methods of the state in assisting health. It was idle to open the doors of 1,000 antenatal clinics unless somebody persuaded 600,000 women to enter them. The reason why our public service was the greatest on earth was that it was built by men who said, "We will get the facts." Sir Newman said that our system was the most amazing scientific, social and administrative instrument for the survival of the people that existed in any civilized nation. This was because we built patiently at the beginning. The daily demand of the English people for clean food was one of the results of the campaign against impure, contaminated, polluted and poisonous food which had been waged by health officers for a generation.

The Decrease of the Child Population of London

In a previous letter (THE JOURNAL, October 12, p. 1156), the profound change in the population, which consists of an increased proportion of the old and a diminished proportion of the young, was described. Figures now given by the Education Committee of the London County Council illustrate this change in a striking way. There are 48,943 fewer children of elementary school age in London than two years ago. Since 1915 the total number of children has declined from 898,439 to 717,917. The number of children born in 1914 who survived was 99,497; in 1918 in consequence of the war the figure had fallen to 64,998. In 1920 the figure was 113,539, but in 1928 it had fallen to 67,473.

PARIS

(From Our Regular Correspondent)

Oct. 30, 1929.

Congress of Stomatology

The sixth Congrès des médecins stomatologistes was held in Paris, October 21-26, under the chairmanship of Dr. Rousseau-Decelle. In his opening address, the president referred to the important place that is assigned nowadays to dental disorders—their rôle in the etiology not only of digestive disorders but even of grave septicemias. He emphasized the need of profound medical studies for the scholarly training of the stomatologist, giving his hearers to understand that the studies carried on in the dental schools could never furnish the knowledge represented by the possession of the doctorate of medicine. Three topics were on the program: (1) septicemias of buccal origin, presented by Drs. Thibault and Raison; (2) surgical treatment of dental disorders, discussed by Dr. Lacronique, and (3) prophylaxis of dental caries, considered by Dr. Frey. The first topic gave rise to animated discussions, in which several physicians and surgeons of Paris participated, among them Dr. Lardennois and Dr. Mathieu Weil. The congress was attended by a number of foreign stomatologists: Dr. Musaph of Amsterdam, Dr. Ackermann of Geneva, Dr. Priem of Ghent, Dr. Starobinsky of Minsk, Dr. Landete Arago of Madrid, Dr. Cesare Cavina of Bologna, Dr. Thiago Marques of Lisbon, Dr. Alfred J. Asgis of New York, Dr. Dimas Aruti of Porto Rico, Professor Szabo of Budapest, Professor Corrado d'Alise of Naples, Dr. Linka of Trieste, Dr. Ramorino of Florence, Dr. Arlotta of Milan, Dr. Franca of Naples, and others. A plenary session of the Association stomatologique internationale was held, at which Dr. Alfred J. Asgis served as secretary. Demonstrations were given in the various stomatologic services of the hospitals and also at the Ecole de stomatologie. A collective visit was organized for the conventionists to the new cancer institute at Villejuif, directed by Professor Roussy.

The Congress of Pediatrics

ICTERUS OF THE NEW-BORN

The Congress of Pediatrics, which was held in Paris under the chairmanship of Dr. Barbier and Professor Hutinel, honorary president, considered three important topics, the first being icterus of the new-born, which was the subject of a very comprehensive paper by Professor Roccaz of Bordeaux, who

divided the types of icterus into two classes, according as they are of physiologic or pathologic origin. The former is very frequent and indicates a certain degree of congenital weakness. It occurs in all premature and weakly children, and in 36 per cent of the new-born of normal weight. As some of the causes he assigned the cold, the chloroform administered to the mother during childbirth and the tardy ligation of the cord, which produces hemolysis through excess of the blood mass. It is often preceded by an erythrodermia and is accompanied by polyglobulia. After reviewing the many theories offered in explanation of the icterus, Roccaz admitted that hemolysis appeared to him the most plausible. As to the pathologic types of icterus, they include: (1) icterus due to retention, associated with congenital anomalies; (2) infectious icterus due to various causes (pulmonary, intestinal, wound of the cord), and (3) icterus of syphilitic origin.

PALLOR AND FEVER SYNDROME IN INFANTS OPERATED ON

The second topic was "The pallor and fever syndrome in infants operated on." MM. Ombrédanne and Armaingeat analyzed in their paper this very grave syndrome (often followed by death) which develops after the most benign operations and is observed particularly by otorhinolaryngologists. Rapid elevation of arterial pressure accompanies rise of temperature and signs of dehydration. The speakers regarded as negligible the effect of the anesthetic employed, and prefer to consider the manifestations as shock symptoms due to reflex action on the myocardium of traumatic origin. The principal indications are to support the heart by the use of epinephrine—if necessary, by intracardiac injections. The outcome depends on the promptness with which treatment is given and on the intelligence of the nurses.

SUDDEN AND UNEXPECTED DEATHS OF INFANTS

The third topic, the "Sudden and unexpected deaths of infants," was treated by Professor Nobécourt and Dr. Boulanger-Pillet. Sudden death is common during the preschool age. About two thirds of the cases of sudden death in children occur during the first year. It is especially to be feared in certain disorders, such as hypertrophy of the thymus, spasmoplasia and eczema (at least, in hospitals). It may result from five main causes: (1) a lesion of one or more organs, which develops in a latent manner and creates suddenly a total insufficiency of an organ essential to life; (2) a general disease, usually an acute infectious disease, which produces a toxemia or a generalized infection; (3) a protein shock; (4) a sudden asphyxia; (5) a fatal syncope due to various causes. It must be admitted that in many cases the personal history, the clinical examination or the necropsy does not explain the sudden death in a satisfactory manner. These ideas should engage the attention of the medicolegalist who is required to perform a necropsy on an infant that has died suddenly under suspicious conditions. Often, in such cases, the mother of the child or a domestic is accused. The conclusions of the expert or of the medicolegalist should be very precise and conservative. The necropsy should apply to all the organs, including the nervous system and the endocrine glands. It should be followed by a microscopic examination. As a rule, such examinations cannot give in a precise manner the real cause of the sudden death; but they often reveal important changes which, while they do not explain always the suddenness of the death, often coincide in point of time with the death and constitute a basis for the assertion that the death was due to natural causes and did not result from a criminal act.

Following the general discussion of the papers, several private communications were presented, one of the most interesting being that of Dr. Cathala on the edemas of the new-born and of the infant. Congenital edemas are due often to a cardiac malformation, to a malformation of the portal system or to a compression of the portal vein resulting from a tumor. Congenital anasarca when it is concomitant with hydramnion is often of syphilitic origin and is associated with an enlarged liver and an enlarged spleen. Among the acquired edemas, one may distinguish the edemas of the new-born, which often develop into sclerema and which are accompanied by peripheral vasodilatation, with a tendency to general coldness. They occur in weakly or premature children, and the cause is still obscure. Acquired edemas of the infant are usually due to prolonged disorders of nutrition, the renal factor seldom entering into the case. The disorders of nutrition that predispose to edema or create it are: the grave states of chronic and progressive denutrition; certain diathetic constitutional states (eczema) and dystrophies acquired as a result of more or less prolonged alimentary defects (hypomineralized regimen or deficiency of proteins and fats, or other lacks). In addition to pathogenic causes properly so called, two factors are predominant; namely, hereditary constitutional predisposition and materials brought in by way of alimentation.

The Otorhinolaryngologic Congress

The annual Congress of Otorhinolaryngology was held recently at the Faculté de médecine de Paris, under the chairmanship of Dr. Sargnon of Lyons. The annual report was presented by Dr. Liebault, general secretary. There were two topics on the program, the first being presented by MM. Flurin of Cauterets and J. Vialle of Nice on "The thermal and climatic indications in otorhinolaryngologic disorders," and the second by MM. Dutheillet de Lamothe of Limoges and Maurice Sourdille of Nantes on "Frontal headaches and their surgical treatment."

Necrology

French surgery has suffered two serious losses in the deaths of two of its well known representatives. Dr. Tuffier recently succumbed to a vesical epithelioma, at the age of 73. His career had been rapid and brilliant. He introduced rachiococainization in France and published numerous articles on duodenal ulcer; surgery of the stomach, the lung, the kidney and the bladder; enucleation of uterine fibromas; the surgical treatment of pulmonary emphysema, and the semeiologic value of examination of the blood in surgery. His lectures, given in his service at the Beaujon Hospital, were attended by many students, both French and foreign. He was well known in foreign countries, particularly America, in which he had traveled extensively, and on one occasion he had given a comprehensive account of the progress of surgery in the United States. He represented France, in 1921, at the dedication in Peiping of the medical institute founded by the Rockefeller Foundation. He was a member of the Academy of Medicine, grand officer of the Legion of Honor, and in 1925 president of the Congress of Surgery. He was much sought as a consultant, even in foreign countries, and had attended M. Clémenceau on the occasion of his receiving a bullet wound in the lung. He went to Morocco by airplane to operate on General Pouymireau, who was gravely wounded by the rebels. During the war he was appointed by the minister of war to the post of *"inspecteur civil supérieur"* of the surgical services of the army. He was a great lover of art and music, and had a fine collection of paintings.

Dr. Lecêne died recently at the age of 51 from typhoid contracted while operating, at the St. Louis Hospital, on a patient suffering from posttyphoid cholecystitis. The nurse, too, who assisted him at the operation contracted typhoid and died shortly before he did. It is not understood just how the disease was contracted as the operation was performed according to accepted surgical technic. Dr. Lecêne was one of the most brilliant surgeons of Paris. He had been appointed professor at the Faculté de médecine just a few months ago, and it was thought that a magnificent career awaited him. He had devoted himself

more particularly to surgery of the limbs and had published a treatise on the subject, which has become a classic.

M. Nepoty, director general of l'Assistance publique and of l'Hygiène publique, subdepartments of the ministry of the interior, died suddenly, at the age of 54. While holding the office of prefect, though not a medical man, he rendered great services to medicine through his active support in the administrative field.

ITALY

(From Our Regular Correspondent)

Oct. 20, 1929.

Congress of Pediatry

The Società italiana di pediatria held its thirteenth national congress in Turin, under the chairmanship of Professor Allaria, pediatric clinician of the University of Turin. In his inaugural address, Professor Allaria described the present conditions among the children of Italy, pointing out that a third of the total number of deaths occurring each year in the entire country are of children under 15 years of age, while one fourth of the total deaths are of children under 1 year of age. The three principal causes of this mortality are: (1) congenital diseases and malformations; (2) acute diseases of the bronchial tree, and (3) acute gastro-intestinal disorders. Among the numerous causes that occasion so high a mortality among children, the chief cause is always the lack of mother's milk and unsystematic methods of weaning. The speaker discussed then the so-called demographic balance, or the excess of births over deaths, which in Italy does not show so marked a decline as in other countries, although it is no longer so prominent as it has been in the past.

Professor Jemma, president of the Società di pediatria, gave a survey of the scientific activities of the various sections, during the year.

RICKETS

The first topic on the program, "Rickets," was divided into two parts. The first part, comprising the pathogenesis and the etiology of rickets, was presented by Professor Zamorani. The speaker discussed the local conditions, namely, those affecting the skeletal system, and the general conditions to be found in those affected with rickets. Locally, the characteristic changes are of two kinds: (1) inability of the osteogenic tissues to form a normal cellular pavement, and (2) arrest of mineralization (demineralization). Some authors attach the chief importance to the medullar proliferative element; others to mineralization. The speaker endorsed the interpretation of Pacchioni, that the bone lesions in rickets are caused by a change in the metabolic activity of the cartilaginous cells, by reason of which the cartilage loses its capacity for regulating the bone development.

The general changes of rickets concern metabolism and the endocrine system. There is a characteristic diminution in the retention of calcium and of phosphorus. A deficiency in the phosphorus ion is of great significance.

From the standpoint of etiology, the causes of rickets are various: disordered functioning of the endocrine glands; disturbances of the neurovegetative system; hereditary factors; lack of vitamins; a deficiency of sunlight, and the like. Therefore, one cannot speak of a unitary etiology. The age and ill adapted alimentation are exceedingly important.

The second part of the topic comprised the prophylaxis and therapy of rickets, and was presented by Prof. Luigi Auricchio. The prophylaxis may be distinguished as prenatal and postnatal. In connection with prenatal prophylaxis (aside from the question of hereditary factors, which concerns rather eugenics), one must not neglect the importance of syphilis and tuberculosis in parents. The diet of the mother during pregnancy must be rich in vitamins. The mother must live in hygienic surroundings and must have plenty of sunshine. In some cases the application of ultraviolet rays will be of value. The main feature of postnatal prophylaxis is alimentation (especially as concerns artificial foods). The diet must not be confined to sterilized milk and flour; other foods rich in mineral salts and vitamins should be given at an early date. Prophylactic irradiation with ultraviolet rays is useful. The whole body of the child may be irradiated from two to three minutes, at a distance of 60 cm. from the lamp, two times a week. Viosterol (irradiated ergosterol) is more useful as treatment, although it was used also prophylactically by the speaker in one hundred cases. Irradiated milk is effective but is expensive. Daily exposure of the child to the sunlight must not be neglected, while all other hygienic needs must be provided for (baths, massage, life in the open air).

Treatment, in addition to the specific treatment required against syphilis when present, is based on alimentation and actinic rays. An excessive milk diet should be avoided, which is harmful even in breast feeding. The speaker admitted the value of irradiated foods and of viosterol (vitamin D), although not too optimistic in the matter. He cautioned against excessive doses. Still useful are the old methods of treatment: cod liver oil, phosphorus, calcium, and sun treatment at the seaside.

CONGENITAL HEART DISORDERS IN CHILDREN

The subject of congenital heart disorders was divided into two parts. Part 1 was presented by Prof. Piero Fornara. After explaining the embryogenic evolution of the heart and the anatomic characteristics of the various periods of development, the speaker discussed the pathologic anatomy of congenital heart disorders. Of these—in the right heart—the most frequent and the most important is the stenosis of the pulmonary artery. Atresia and congenital dilatation of the pulmonary artery are rare; also anomalies of the orifices and of the tricuspid valve. The congenital lesions of the left heart are divided into various types. Stenosis of the aorta is quite frequent, while dilatation of the aorta itself and the anomalies of the semilunar aortic valves are rare. Congenital mitral stenosis appears to be rare. As regards the anomalies of the septums, persistence of Botallo's foramen and of the interventricular communication is frequent. Exceptional is the complete simultaneous absence of the two septums; less rare are the cases of hearts with three cavities. Common is the persistence of the ductus arteriosus due to arrest in the evolution of the aortic arches. There are complex congenital heart disorders due to association with other lesions: among others, the trilogy and the tetralogy of Fallot. As to the pathogenesis of congenital cardiopathies, two main theories are entertained, that of fetal endocarditis and that of teratologic origin. The latter—except for certain cases—appeared to the speaker the more plausible. The etiology also is obscure; diseases, infections or intoxications of the parents or of the mother alone are invoked as causes; also hereditary tuberculosis, considered as due to transplacental infection with a filtrable virus. Greater importance is certainly to be attributed to congenital syphilis, although the speaker does not believe that it is present in 90 per cent of the cases of congenital cyanosis, as some pediatricians and syphilologists maintain.

Part 2 of the subject of congenital cardiopathies was handled by Prof. Ferruccio Zibordi. He spoke of the general symptomatology of congenital cardiopathies and of the differential signs that distinguish them from acquired disorders. In the congenital disorders, inspection shows appreciable variations but rarely; palpation reveals nearly always a more or less rough mesocardiac fremitus. Percussion shows more accentuated volumetric variations of the right heart. On auscultation, the congenital heart sounds are strong and rough, and may be heard from the back. The general state of nutrition of a subject with congenital cardiopathy is nearly always defective. Of great importance is cyanosis, which appears on various occasions in certain cases; it varies in intensity and increases with the least fatigue or emotion. Hippocratic fingers are quite characteristic. In the eye fundus one observes nearly always modifications of the circulation, and sometimes also a true

cyanosis. The speaker did not find a marked hyperglobulia in his cases; the hemoglobin index varied, but the white corpuscles did not show variations of importance. The speaker then gave a semeiologic description of the various groups of congenital cardiopathies, referring more particularly to aortic stenosis and to essential mitral stenosis, or Duroziez' disease. He spoke also of congenital disturbances of conduction, and especially of congenital bradycardia resulting from atrioventricular dissociation. The course and the prognosis of congenital cardiopathies vary from case to case, depending on the lesion that affects the subject and the nature of the disorder. The prognosis is aggravated by the occurrence of intracardiac complications, such as endocarditis and myocarditis.

THE OPEN-AIR SCHOOL

The third topic on the program, "The Open-Air School," was discussed by Prof. Alfredo Gismondi. There are today three main types of open-air school in Italy: (1) at a fixed place and with an organization of a permanent nature; (2) temporary (during favorable weather), and (3) recreational (which function as a supplementary addition to the common schools). The first type is the best, and it is needed chiefly in large urban centers. The speaker explained the criteria that should be followed in the selection of the location of an open-air school (a quiet shady place), in the arrangement of the schoolrooms and in their equipment. In order to fulfil completely the purpose of the open-air school, the pupils must be furnished opportunities for strengthening the organism, among which abundant school lunches, exercise and physical therapy (air baths and sun baths) are essential. The results accomplished to date with the open-air school are improvement of the appetite, increase of stature, weight and pulmonary capacity, and improvement in the blood. The speaker considered also the indications and the contraindications to the open-air school, mentioning, among the first, thin, anemic, pretuberculous children, and, among the second, the contagious, the rheumatic and the ostearthritic types.

Professor Valagussa presented the congress an account of the activities, during the year, of the national society for the protection of mothers and children.

At the election of officers for the ensuing year, Professor Cattaneo, director of the Clinica di Milano, was chosen president of the Società di pediatria, while Professor Allaria, pediatric clinician of Turin, was given the post of vice president. Florence was selected as the next place of meeting.

VIENNA

(From Our Regular Correspondent)

Oct. 30, 1929.

Surgeon Sentenced for Ligation of the Spermatic Cord

A few days ago, a case was tried in Graz, the second city of Austria, that will awaken great interest in medical circles. Professor Schmerz, chief surgeon of the workmen's *krankenkasse* (sick benefit association), was accused of having inflicted on many male patients "a bodily injury through negligence," because he had performed an operation on them that prevented them from begetting children. Professor Schmerz refused at first to make any statement, taking refuge in the physician's right of privileged communication. But the court was able to produce about 700 men who had been sterilized by the accused surgeon, within the past two years. During the course of the trial, it was brought out that Dr. Schmerz demanded of his patients the so-called social indications before performing the aforementioned operation, after the manner of women who endeavor to justify an artificial interruption of pregnancy. In Austria, section 144 of the penal code prohibits a physician from performing an abortion other than in a very few urgent pathologic conditions. The "social conditions" have no weight in the interpretation of section 144; hence there are many secret artificial interruptions, which often end fatally, because they are carried out by unskilled hands. Professor Schmerz performed bilateral vasoligation on a large number of men who already had many children or whose wives presented pulmonary disease or, for some valid reason, were not permitted to have more children. According to his statements, the described intervention produces a temporary sterilization of men without affecting otherwise their sexual function. Professor Schmerz asserts that, whenever the surgeon (or the patient) so desires, only a slight operation is required to counteract the effects of vasoligation and to restore the fecundating capacity of the patient. At the trial, a large number of men who had been operated on (belonging mostly to the laboring class) were brought into court and confirmed that they had subjected themselves voluntarily to the sterilizing operation, which was accomplished under local anesthesia in ten minutes, and that since the intervention they had felt much better and stronger. The counsel for the accused surgeon contended that the charge of "bodily injury" was most absurd; that the surgeon had acted in accordance with his best scientific convictions; that one could with equal justice bring charges against Dr. Voronoff or Dr. Steinach, or against any physician who makes a blood test or performs a cosmetic operation, since these interventions are not "absolutely necessary operations," as the court expressed itself. In spite of the fact that all the witnesses testified in favor of the accused, the court imposed on the surgeon a fine of 15,000 shillings ($2,100) or two days in jail, for "bodily injury," on the basis of section 411 of the penal code of Austria, which section deals with manhandling and stabbing! At the same time, the University of Graz opened a disciplinary inquiry. This opinion of the court has awakened much surprise throughout Austria. If this conviction is upheld by the higher courts, it will subject every medical intervention to the danger of the imposition of a penalty at the hands of any judge before whom a case is brought. The appellate court will be given an opportunity to revise this decision.

The Question of Professional Secrecy After the Death of the Physician

Professor Tandler, M.D., gave recently an interesting short talk on the question hitherto but little discussed as to what should be done with the records of a physician concerning his clientele, which after the physician's death have fallen into the hands of his heirs. In Austria, it usually happens, after the death of a physician, that his patients become scattered among several different physicians. Such a thing as buying or selling a medical practice is practically unknown in this country, especially among practicing physicians. The records of a deceased physician might, therefore, easily fall into bad hands and thus give rise to abuses. Professor Tandler exressed the view that such records of deceased physicians should, in accordance with a special legal enactment, be placed in official archives for a period of from ten to fifteen years (possibly under the control of the public health service of the last scene of the physician's activities), where they could be secured at any time, by the newly engaged physician of any patient. After fifteen years, any remaining records should be destroyed. The proposal was endorsed by many, although it may be difficult to secure the needed legislation.

The Cancer Hospital in Vienna

Dr. Edelmann received a gift of $100,000 from the American philanthropist Mr. Childs, with which to establish a central institute for cancer research in Vienna. He has succeeded in acquiring a suitable building, together with equipment, and it will now be provided with the most modern research apparatus. This institute is connected with a private sanatorium and will be equipped to receive from fifty to sixty cancer patients. It will be conducted by Dr. Edelmann, aided by a staff of expert workers. The Chemisch-pharmaceutisches Institut of the University of Vienna and the Staatliche Serotherapeutisches Institut will cooperate with the newly founded institute in the solution

of the problems that may arise. It is interesting to note that the authorities and the leading surgeons did not welcome at first the creation of the cancer hospital but placed difficulties in the way.

Rheumatism in Relation to Social Insurance

In recent years, the problem of rheumatism has entered more and more the field of interest of all large *krankenkassen* and social insurance institutes in Austria. The experience gained in the crusade against tuberculosis has been valuable in attacking the problem. Consultation centers for rheumatic patients, both for diagnosis and for treatment, have been created; also care-taking centers providing suitable dwellings and permanent control of chronic cases. Dr. Rosenfeld, more particularly, has devoted himself to the collection of statistics in this field and has gleaned what information he could from the records of the various large *krankenkassen* in Vienna. He compared the observations of 1927 and 1928 and derived this information: In 1927, these *krankenkassen* had 280,539 members, and in 1928, 158,440 members, of both sexes. In 1927, the sickness per hundred members was as follows: "gout" 0.10, acute rheumatism 6.44, chronic rheumatism 1.08, total 7.62; in 1928, "gout" 0.12, acute rheumatism 6.00, chronic rheumatism 0.98, total 7.10. The number of paid sick days per hundred members was as follows: in 1927, for "gout" 3.26, acute rheumatism 94.68, chronic rheumatism 35.86, total 133.80; in 1928, for "gout" 2.14, acute rheumatism 87.05, chronic rheumatism 41.53, total 130.72. The average duration of an illness expressed in days was as follows: in 1927, for "gout" 27.1, acute rheumatism 14.7 and chronic rheumatism 35.6, total 77.4; in 1928, for "gout" 21.0, acute rheumatism 14.5 and chronic rheumatism 42.6, total 78.1.

These figures show that, whereas the crusade against rheumatism has hitherto been confined to individual treatment, in order to be effective it must be generalized and carried out on just as large a scale as with respect to tuberculosis. That is possible only in special sanatoriums for rheumatism, and only on the assumption that patients dismissed from the sanatorium must be kept by their physician under control as chronic cases. And, above all, the differential diagnosis of rheumatism as against numerous other conditions must be made plain. Those are: metastases of neoplasms in the skeletal system, tuberculosis of the joints or of the bones, sacro-iliac arthritis, lumbago associated with pyelitis, pains of the shoulder in angina pectoris or aortic aneurysm, tabes dorsalis and neurosyphilis.

In Vienna, three large centers for rheumatic patients have been established. These are located in the three largest Vienna hospitals and work in cooperation with the *krankenkassen*. Further, in the ambulatoriums of the large *krankenkassen* modern and extensive equipment has been installed, in order to make available to members who are not confined to bed all the aids of physical therapy. In the Austrian spas especially suitable for rheumatic disorders (Baden, near Vienna, sulphur baths; Gastein, radioactive springs; Schallerbach, sulphur and iodine baths), the *krankenkassen* have engaged a number of beds for their members, in order to provide for them the special balneotherapy they may need. In closing, Dr. Czech, who discussed this whole subject before the league of the *krankenkassen* of Vienna, remarked that the British ministry of health had issued a pamphlet, "The Incidence of Rheumatic Disease," according to which in England one sixth of the invalidity of workmen is due to rheumatic disease, which costs annually 2,000,000 pounds sterling for sick benefits, with a loss of eighteen million work days in a year. Fifty per cent of the loss was assigned to chronic rheumatism. For Berlin, Dr. Zimmer figured that the number of rheumatic patients who are members of the *krankenkassen* is seven and one-half times as great as the number of tuberculosis patients, and the number of work days lost through rheumatism is three times as great as the number lost through tuberculosis. In combating tuberculosis, however, much larger sums are expended than for the control of rheumatism. There is also more opportunity for the treatment of tuberculous patients in institutions than there is for rheumatic patients. Also in Sweden, more than 1,500 persons annually become invalids owing to rheumatism. All these facts explain the absolute need of combating a disease that is causing so much harm to the whole population.

BERLIN

(From Our Regular Correspondent)

Nov. 1, 1929.

The Effects of Industrial Development on the Bodies of the Workmen

Before the Berlin Gesellschaft für öffentliche Gesundheitspflege, Medizinalrat Ascher recently discussed the effects of industrial development on the bodies of the workmen. Simultaneous with the large-scale development of the industries, there has been a movement of labor toward the cities and the factory towns. The increase in mortality occasioned thereby is not as great as has been assumed; it is only a few per cent. On the other hand, the difference between agricultural and industrial conditions reaches 83 per cent or more, caused solely by the differences in the mortality of the working age groups. One would expect, therefore, that in countries with outstanding industrial development the mortality, in contrast with agricultural countries, would be high. In England and Wales, however, the mortality from 1875 on shows a marked decrease, whereas in Ireland, in which agriculture prevails, it is on the increase. The mortality in Prussia shows similar phases. In the agricultural period from 1816 to 1875, it showed no decrease; but during the succeeding industrial period there was a marked decrease in the mortality, interrupted only by the Great War. It may be shown that, after the Franco-Prussian War (1870-1871), fifteen years passed before an appreciable decrease in mortality was noted, whereas after the Great War (1914-1918) and the succeeding period of partial famine there was a distinct, ever increasing decline in mortality, so that one cannot speak of a postwar degeneration but rather of an elevation of the people. The reason for these improved conditions is not, however, to be sought chiefly in the field of hygiene; for with reference to the most frequent cause of death during the period of productivity—tuberculosis—the incidence shows very little improvement, so that the decrease of mortality from tuberculosis is ascribable solely to an improvement in living conditions. Nor can industrial hygiene as a whole show any visible progress, although progress in individual cases cannot be denied. The decrease in the mortality from tuberculosis is due chiefly to an improvement in actual wages, and very likely also to a lightening of labor as the result of better utilization of natural forces (steam engines, electricity). The decrease in the tuberculosis mortality has not, however, as was feared to some extent, been bought with an overexertion of the heart and the vascular system; for in Prussia the mortality from these conditions among males of the age of productivity shows almost a 25 per cent decrease. It is a question, therefore, of an improvement in living conditions, together with a lightening of physical labor.

Serologic Determination of Parental Origin

In view of the extraordinary importance of the problem of the serologic determination of parental origin for both science and practice (to mention only the theory of hereditary transmission, alimentation processes, and the like), Professor Zangemeister, director of the Königsberg Universitäts-Frauen-Klinik, has long been endeavoring to discover a method of procedure that would permit him to demonstrate the specific individual qualities of the blood serum, which he postulated. According to a report contained in the *Deutsche medizinische Wochenschrift* on the researches carried out by Zangemeister with the cooperation of Königsberg physicists, it proved possible, with the Zeiss graduated photometer, to demonstrate that a mixture of

the blood serum of the new-born with that of either parent gives a characteristic change of color when viewed in Tyndall light. By Tyndall light is meant the light that is reflected or dispersed by the smallest particles that are contained in a substance, through which the otherwise invisible particles are made accessible to the perception, corresponding to the frequent observation that dust particles can be made visible in a darkened room by allowing a ray of light (for example, a ray of sunlight) to enter. This Tyndall light undergoes no change, or at most only a slight change, when the blood serums of unrelated persons are mixed, whereas it decreases considerably within a few hours if the serum of one of the parents is mixed with that of the offspring. Recently, Zangemeister is said to have demonstrated that the same reaction occurs in older offspring (up to age 30) when their blood serum is mixed with that of either parent, as compared with the mixture of serums of unrelated persons.

In order to eliminate all subjective influences from the experiments with the photometer, the same experiments were repeated and this time the human eye was replaced by a cell sensitive to light. Here, too, the same phenomenon was demonstrated. In further experiments, an attempt was made to establish and elucidate the photometric process by ultramicroscopic researches in a dark field. In a dark field, the smallest particles become visible only through the light dispersed by them, whereas in a penetrating light they remain invisible. Serums and serum mixtures were observed in the dark field under strong illumination, while fresh and also after certain intervals, and the pictures were preserved by means of instantaneous photographs taken of them. In this connection, it was observed that the visible protein particles developing when the serum of the offspring was mixed with that of the parent become much fewer after half an hour. The finer particles are replaced by coarser formations, doubtless owing to the clumping of the protein particles. In the case of mixtures of serums of unrelated persons, this phenomenon was always absent. The process developed usually so rapidly that a few minutes after the mixture characteristic changes were observable. As it was possible to separate the blood serum from the blood corpuscles immediately after the blood was taken, the diagnosis as to origin could commonly be reached within an hour after taking the blood. This mode of examination offers, in addition, the advantage that, in contrast with the photometer, only very small quantities of blood are required. The photometer, on the other hand, makes it possible to observe the process not only qualitatively but quantitatively from the standpoint of time. The result will probably be that both methods of procedure (ultramicroscope and photometer) will be employed in establishing the parental origin of a subject. From the ultramicroscopic instantaneous photographs, even the novice can establish the parental origin at once.

Partly for theoretical reasons and partly in view of the importance of the method of investigation for the theory of origin and the theory of hereditary transmission, and also for animal husbandry, similar researches were carried out on animals. In a number of animal species analogous changes were observed. In the animal experiments, some difficulties were encountered in endeavoring to keep the serums and serum mixtures optically constant. The reliability of the method of investigation is already relatively high.

As would be expected, certain difficulties still have to be reckoned with; nevertheless it may be assumed that the new method of examination constitutes a distinct advance in serologic diagnosis, which has a scientific and practical value. In a similar manner—that is, by mixing the blood serum with placental extract, it may prove possible to demonstrate pregnancy serologically. Also the diagnosis of syphilis can be carried out by means of the Meinicke extract with greater certainty and rapidity than was previously possible.

Marriages

THOMAS CRESSON GARRETT, Philadelphia, to Miss Adelaide McCulloch Jefferys of Rosemont, Pa., October 4.

HARRY E. WILLIAMS, JR., Pine Bluff, Ark., to Mrs. Emily Perrin of Philadelphia, October 21.

SAMUEL HALPERN, Newark, N. J., to Miss Ethel Silverman of New York, November 21.

WILLIAM E. GEIGER to Miss Dorothy Phillips, both of Brooklyn, November 3.

JAMES ROSS VEAL to Miss Sara Jeanette Stout, both of Philadelphia, August 30.

SAMUEL MORTON CRESWELL, Tacoma, Wash., to Miss Alice M. Snyder, August 19.

SARA E. MAULE, Norristown, Pa., to Judge J. Burnett Holland, November 8.

ADALBERT MISKOWIEC to Miss C. Gonzales, both of La Jara, Colo., August 24.

Deaths

Harry Monroe McClanahan ⊕ Omaha; Jefferson Medical College of Philadelphia, 1878; third vice president of the American Medical Association in 1912, and member of the House of Delegates, 1903, 1916 and 1917; past president of the Nebraska State Medical Association and the Douglas County Medical Society; member of the American Pediatric Society and the American College of Physicians; emeritus professor of pediatrics, University of Nebraska College of Medicine; author of Pediatrics for the General Practitioner; aged 72; died, November 20, of heart disease.

Robert Morris Butler ⊕ Major, U. S. Army, retired, McComb, Miss.; Louisville (Ky.) Medical College, 1894; member of the American Psychiatric Association; served during the World War; was appointed a captain in the Medical Corps, U. S. Army, in 1920 and was retired as major, Oct. 4, 1929; formerly superintendent of the Mississippi State Insane Hospital, Jackson; aged 56; died, October 12.

Louis Albert Nippert ⊕ Minneapolis; Miami Medical College, Cincinnati, 1883; at one time professor of medicine, University of Minnesota Medical School; formerly on the staff of the Asbury Hospital; aged 69; was killed, November 8, when he was struck by an automobile while horseback riding.

Sarah Hunt Lockrey ⊕ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1888; member of the American College of Surgeons; formerly on the staff of the Woman's Hospital and the West Philadelphia Hospital for Women; aged 66; died, November 8, of carcinoma.

Edgar Jennings Grose, Fayetteville, W. Va.; College of Physicians and Surgeons, Baltimore, 1909; member of the West Virginia State Medical Association; formerly president of the Fayette County Medical Society; at one time county health officer; aged 53; died, October 13, of erysipelas.

William George Byrd, Goldsboro, N. C.; Vanderbilt University School of Medicine, Nashville, Tenn., 1903; member of the Medical Society of the State of North Carolina; served during the World War; on the staff of the State Hospital; aged 54; died suddenly, October 25, of heart disease.

Walter McKay Besore, Macedonia, Iowa; State University of Iowa College of Medicine, Iowa City, 1898; member of the Iowa State Medical Society; formerly member of the school board and town council; aged 55; died, October 2, at the Mercy Hospital, Council Bluffs, of carcinoma of the liver.

John S. Kelley ⊕ Binghamton, N. Y.; Syracuse University College of Medicine, 1900; president and for many years member of the school board; on the staff of the Binghamton City Hospital; aged 53; died, October 12, of cerebral hemorrhage and chronic nephritis.

Ora Levant Pelton, Jr. ⊕ Elgin, Ill.; Northwestern University Medical School, Chicago, 1909; member of the American College of Surgeons; on the staffs of the Sherman Hospital and St. Joseph's Hospital; aged 42; died recently, of pleurisy.

Philip John Keizer, North Bend, Ore.; University of Oregon Medical School, Portland, 1914; member of the Oregon State Medical Society; aged 43; died, October 14, at the Good Samaritan Hospital, Portland, following an operation.

⊕ Indicates "Fellow" of the American Medical Association.

Oscar Smith Spivey, Macon, Ga.; University of Georgia Medical Department, Augusta, 1917; member of the Medical Association of Georgia; served during the World War; aged 35; died, October 19, of cerebral hemorrhage.

J. Lee Richmond, Toledo, Ohio; Medical Department of the University of the City of New York, 1883; dean of men, University of the City of Toledo; aged 72; died, October 1, of cerebral thrombosis and arteriosclerosis.

David H. Ransom, Spokane, Wash.; University of Buffalo (N. Y.) School of Medicine, 1900; member of the Washington State Medical Association; aged 52; died, October 4, of cerebral hemorrhage and arteriosclerosis.

Roderick H. Gary, Murfreesboro, N. C.; College of Physicians and Surgeons, Baltimore, 1881; member of the Medical Society of the State of North Carolina; aged 72; died, October 24, of cerebral hemorrhage.

Horace C. Brashear, Winterville, Miss.; University of Tennessee College of Medicine, Memphis, 1882; aged 75; died, October 2, at the King's Daughters Hospital, Greenville, of carcinoma of the esophagus.

Frederick Montizambert, Ottawa, Ont., Canada; University of Edinburgh, Scotland, 1864; formerly director general of public health and sanitary adviser to the dominion government; aged 87; died, November 2.

John William Baird, Mars Hill, N. C.; Tennessee Medical College, Knoxville, Tenn., 1901; member of the Medical Society of the State of North Carolina; aged 48; died, November 7, of heart disease.

Mary Alena Charteris, Worcester, Mass.; Woman's Medical College of Pennsylvania, 1894; member of the Massachusetts Medical Society; aged 64; died, October 28, at Moncton, N. B., of carcinoma.

Roscoe P. Pierce ⊕ Holbrook, Neb.; University of Louisville (Ky.) School of Medicine, 1895; served during the World War; aged 58; died in October at the Mary Lanning Hospital, Hastings, of asthma.

Joseph Edward Dildy ⊕ Brownwood, Texas; Memphis (Tenn.) Hospital Medical College, 1900; president of the State Medical Association of Texas ;aged 59; died, November 5, of angina pectoris.

Norman Balfour, Hot Springs, S. D.; Detroit College of Medicine and Surgery, 1905; aged 47; on the staff of the Battle Mountain Sanitarium, where he died suddenly in November, of angina pectoris.

Lillian Gurine Stevenson, Portland, Ore.; Woman's Medical College of Pennsylvania, Philadelphia, 1909; aged 50; died, September 21, at the Emanuel Hospital, of carcinoma of the thyroid gland.

Camden Ballard Eddy, San Bernardino, Calif.; University of Louisville (Ky.) School of Medicine, 1875; Confederate veteran; formerly a druggist; aged 88; died, November 3, of myocarditis.

Albert L. Sibold, Newport, Va.; Maryland Medical College, Baltimore, 1909; aged 55; was instantly killed, November 2, when the automobile in which he was driving was struck by a train.

Arthur W. Whitney ⊕ St. Paul; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1888; aged 65; died, September 14, of cerebral arteriosclerosis and coronary thrombosis.

Jesse A. Orr, Metropolis, Ill.; Eclectic Medical Institute, Cincinnati, 1878; member of the Illinois State Medical Society; Civil War veteran; aged 84; died, October 29, of hypostatic pneumonia.

George Morton, Angel Island, Calif.; University Medical College of Kansas City, Mo., 1897; aged 69; died, October 10, at the U. S. Marine Hospital, San Francisco, of carcinoma of the liver.

Thomas Bowles, Harrison, Ohio; Eclectic Medical Institute, Cincinnati, 1898; formerly professor of medical gynecology at his alma mater; aged 77; died, November 9, of angina pectoris.

Fred Marq Dean, Jefferson, Iowa; College of Physicians and Surgeons, Chicago, 1892; member of the Iowa State Medical Society; aged 62; died, October 16, of pneumonia, following influenza.

Louis Apgar Queen, New York; New York Homeopathic Medical College and Hospital, 1888; aged 67; was found dead, November 20, of burns received when his pipe set fire to his clothes.

Percy J. Stollenwerck, Jacksonville, Fla.; University of Virginia Department of Medicine, Charlottesville, 1883; aged 68; died, October 4, at New Windsor, Md., of volvulus.

Homer L. Iddings, Crown Point, Ind.; Detroit Medical College, 1876; member of the Indiana State Medical Association; aged 77; died, November 1, of carcinoma of the bladder.

Walter Orin Howell, Long Beach, Calif.; University of California Medical School, San Francisco, 1907; served during the World War; aged 52; died in August, of chronic myocarditis.

James Smith Webster, Hancock, Md.; University of Maryland School of Medicine, Baltimore, 1896; also a pastor; aged 58; died, February 28, of carcinoma of the gallbladder.

Miguel F. Des Marais ⊕ Las Vegas, N. M.; St. Louis Medical College, 1890; formerly superintendent of the New Mexico Insane Asylum; aged 61; died, July 19, of glossitis.

Charles T. Waggoner, Spartansburg, Pa.; Hahnemann Medical College and Hospital, Chicago, 1887; aged 73; died, June 15, of cerebral hemorrhage and diabetes mellitus.

James M. Henwood, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1889; Victoria University Medical Department, Coburg, Ont., 1889; died, September 14.

William Harris Shane, Philadelphia; Homeopathic Hospital College, Cleveland, 1890; aged 66; died, November 12, at the Hahnemann Hospital, of cerebral hemorrhage.

Cassius M. Ketcham, Carthage, Mo.; George Washington University Medical School, Washington, D. C., 1893; aged 66; died, October 21, of nephritis and uremia.

Vinton Ray Townsend, Long Beach, Calif.; University of Southern California College of Medicine, 1909; aged 48; died, September 27, of cerebral hemorrhage.

William Sharp McCreight ⊕ Blairsville, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1891; aged 65; died, September 15, of chronic myocarditis.

James Benton Patterson, Detroit; Long Island College Hospital, Brooklyn, 1877; aged 72; died, January 21, of chronic endocarditis and renal insufficiency.

W. Deck Wilkerson, Billings, Mo.; Missouri College of Medicine and Surgery, St. Louis, 1902; aged 50; died, February 6, of cerebral hemorrhage.

Noah Adair ⊕ Indianapolis; Kentucky School of Medicine, Louisville, 1894; aged 61; died, October 19, of acute dilatation of the heart and nephritis.

Delany T. Pratt, Commerce, Texas; University of Louisville (Ky.) School of Medicine, 1891; aged 63; died, October 11, of pulmonary tuberculosis.

Edwin Augustus Mills, Miami, Ind.; Marion-Sims College of Medicine, St. Louis, 1899; aged 68; died, October 27, of cerebral hemorrhage.

Olen Winfield Looker, Rock Island, Ill.; Keokuk (Iowa) Medical College, 1894; aged 70; died in October, at Rochester, Minn., of heart disease.

Albert Huston Barton, Tuskahoma, Okla.; Barnes Medical College, St. Louis, 1901; aged 64; January 7, at Paris, Texas, of gastric ulcer.

Robert H. Twiggs, Hiawassee, Ga.; University of Georgia Medical Department, Augusta, 1888; aged 72; died, October 31, of heart disease.

Moses Osias, New York; University of Iassy School of Medicine, Iassy, Roumania, 1899; aged 55; died, November 13, of heart disease.

Flora Smith Russell, Boston; Toledo (Ohio) Medical College, 1887; aged 90; died, September 23, of chronic myocarditis.

William A. Avery, Ulysses, Neb.; Medical Department of Columbia College, New York, 1868; aged 82; died, June 24, of senility.

Farrar William Skillern, Boise, Idaho; Vanderbilt University School of Medicine, Nashville, Tenn., 1876; aged 78; died, August 26.

William E. Green, Lexington, Ind.; Eclectic Medical Institute, Cincinnati, 1894; aged 78; died in October at Bloomingdale.

Michael Joseph Henry Woolf, Susanville, Calif.; Cooper Medical College, San Francisco, 1889; aged 69; died, August 11.

Charles G. Rohlfing ⊕ St. Louis; Humbolt Medical College, St. Louis, 1867; aged 85; died, October 14, of pneumonia.

Joseph Sandahl, Chicago; Jenner Medical College, Chicago, 1906; aged 71; died, August 19, of chronic myocarditis.

Frank E. Webb, Bridgeport, Conn. (licensed, Connecticut, 1900); aged 77; died, August 30, of coronary disease.

Bethel Nowlin, Georgetown, Texas; Louisville (Ky.) Medical College, 1886; aged 70; died, August 26.

Bureau of Investigation

MEDICAL PUBLICITY BUREAU

Physicians Get Telegrams on a "Movement to End Spitting in Public Places"

During the past two weeks many physicians and at least some city Chambers of Commerce have received telegrams (day-letters), reading as follows:

"WILL YOU JOIN WITH OTHER LEADING PHYSICIANS IN COUNTRYWIDE MOVEMENT TO END SPITTING IN PUBLIC PLACES AND REDUCE DISEASES SPREAD IN THIS MANNER BY TELEGRAPHING US, DAYLETTER COLLECT, FIFTY-WORD STATEMENT IN CONNECTION WITH THIS OBJECTIONABLE HABIT. WE PROPOSE USING THIS STATEMENT IN SYMPOSIUM IN THE PRESS OF THE COUNTRY FOR THE BENEFIT OF THE LAY PUBLIC. WE FEEL YOUR STANDING AS AN AUTHORITY IN YOUR COMMUNITY WILL GIVE ADDED VALUE TO YOUR STATEMENT. MEDICAL PUBLICITY BUREAU, ROOM 305, EIGHTY EAST 11TH STREET, N. Y."

As a result of these telegrams, the Bureau of Investigation has received a number of inquiries asking for information regarding the "Medical Publicity Bureau" and the possible motive behind the scheme. There was in the files of the A. M. A. Bureau of Investigation a record of one Medical Publicity Bureau, which in 1924 was operating from 13 Astor Place, New York, and had for its Director one Emilie Recht. There was also in our files a record of a Medical Publicity Bureau at 12 Nathan Davis Place, New York City. There was no record, however, of any organization of this name at 80 East 11th Street, New York City. In order to obtain information, a telegram was sent to the National Better Business Bureau at New York City, asking them to find out, if it were possible, who or what was behind this concern. From information received from the National Better Business Bureau, it appears that Room 305, 80 East 11th Street, New York City, carries a sign on the door reading: "St. Dennis Offices Corporation, Raymond Service, Inc., Henry Bern." Inquiry brought the statement that the people at this address were, in this instance, simply functioning mechanically in sending out the telegrams and tabulating the replies, and that the headquarters of the Medical Publicity Bureau were at 12 Nathan Davis Place. The National Better Business Bureau reported, further, that the Medical Publicity Bureau acts as a medical advertising agency for drug houses and attempts to procure information by circularizing questionnaires and interpreting data; also, that Dr. James Macbeth and Dr. William J. Robinson were the principals and the Publicity Bureau was affiliated with the "American Society of Medical History," whose official organ is *Medical Life*.

It was learned also that in 1925, an investigation was made of the Medical Publicity Bureau, which at that time was located at 13 Astor Place, Manhattan. At that time it was stated that the Bureau was incorporated under the laws of the State of New York; that James Macbeth was president and Emilie Recht of 12 Nathan Davis Place, secretary and treasurer. Macbeth was said to have declared that (at that time) he had been in the United States for four years; that he held a degree in medicine from the Aberdeen (Scotland) University, and that the Medical Publicity Bureau was acting as a medical advertising agency. The report further said that Dr. William J. Robinson of the *Critic and Guide* was the principal stockholder, with Miss Recht (also a large stockholder) business manager of *Medical Life*. At that time, too, it was stated that the Medical Publicity Bureau did medical-copy advertising for drug houses and surgical supply companies and procured information by circulating questionnaires and interpreting data.

With the foregoing information furnished by the National Better Business Bureau, the files of the Bureau of Investigation of the American Medical Association were looked into, and it was found that, in 1924, the Medical Publicity Bureau—then functioning from 13 Astor Place, New York City—sent out a questionnaire in the interests of Ivory Soap; in 1925, the same Bureau was circularizing physicians on the dietetic value of gelatin; in 1926, a physician wrote to THE JOURNAL, stating that he had received a letter from the Medical Publicity Bureau of 12 Nathan Davis Place, asking for his endorsement of a certain kind of shoe.

A study of the advertising pages of *Medical Life* might give one the impression that the nostrums that are rejected by THE JOURNAL of the American Medical Association and the various state medical journals and other medical journals that follow the standards laid down by the Council on Pharmacy and Chemistry can find happy haven in the advertising pages of *Medical Life*. Such nostrums as "Sal Hepatica," "Sanmetto," "Pepto-Mangan," "Ergoapiol," "Cactina Pillets," "Neurilla," "Peacock's Bromides," "Chionia," "Abican," "Pineoleum," "Angostura Bitters," "Antiphlogistine," "Fellows' Syrup," etc., etc., are to be found in a recent issue of *Medical Life*.

Medical Life also contained a full-page ad of the "Lucky Strike Cigarette" and one is led to wonder whether the present telegram regarding spitting has any bearing on the American Tobacco Company's latest campaign, emphasizing the alleged fact that "Cremo Cigars" are not spat on in the process of manufacture! It seems hardly credible that an advertising agency would go to the expense of sending out telegraphic day-letters and paying for telegraphic replies solely in the interests of pure science!

Correspondence

DRAINAGE OF ABSCESS OF THE HAND

To the Editor:—In reply to Dr. A. L. Hall (THE JOURNAL, October 5, p. 1083), I would call attention to the fact that, while unquestionably gravity drainage of any abscess is good surgical technic, in the examples cited a lack of knowledge of the anatomy of the lymphatics of the hand has led to erroneous conclusions.

In his masterly work "Infections of the Hand," Kanavel has distinctly brought out that the disproportionate swelling present on the dorsum of the hand following injuries or infections on the palmar aspect is due to two factors: First, the palmar tissues are hard, are tensely bound down and do not therefore lend themselves to easy distention, whereas the dorsal tissues are loosely attached and easily distensible by accumulating edematous fluid. Second, and of greater importance, is the anatomic fact that the lymphatics of the hand pursue from the palmar surface the shortest course to the dorsum, thus draining away the infectious material and allowing it to accumulate and cause edema of the loose tissues on the back of the hand. Pus is rarely present, and incision of dorsal tissues for palmar infections can but lead to unsatisfactory and even disastrous results. The effect of gravity has nothing whatever to do with drainage through the lymphatics. The dorsum will swell regardless of how the hand is held if the infection is of sufficient violence.

DOUGLAS W. OWEN, M.D., South Bend, Ind.

ACRIFLAVINE BASE IN VENEREAL PROPHYLAXIS

To the Editor:—The efficiency of venereal prophylaxis during the World War was demonstrated beyond question as an important measure in the prevention of these diseases. The usual order of procedure was the use of soap and water, 2 per cent protargol and calomel ointment.

I suggest the use of 1:4,000 acriflavine base solution instead of the irritating 2 per cent protargol, not omitting the soap and water and the calomel ointment.

I have a close check on more than fifteen hundred cases of acute gonorrhea in civil practice in which acriflavine base, 1:4,000 solution, was used, and have demonstrated a clinical cure in almost 33 per cent of the cases in the first ten days, using it several times a day in the office.

In making up the solution of 1:4,000 acriflavine base, the thermometer should always be used to see that the temperature

is at least 115 F. and the irrigation given with very little pressure, the irrigator never higher than a man's chin.

My experience with acriflavine base in the cases mentioned absolutely convinces me that it is the best known gonococcide to date, provided the infection is still superficial in the urethra. On the other hand, it can cause irritation and strictures in a more insidious manner than any other drug because of the lack of pain at the time of its use by the patient. For that reason I like to use it in the office only, treating cases, but this does not hold good for an occasional use as a prophylactic.

I suggest the substitution of 1:4,000 acriflavine base solution in the place of 2 per cent protargol, in the usual plan followed for venereal prophylaxis.

J. GUY STROHM, M.D., Portland, Ore.
Colonel, Medical Officers Reserve Corps, U. S. Army.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INSULIN FOR DIABETES DURING DIPHTHERIA

To the Editor:—Please advise on the following: Diphtheria developed in a child, aged 10 years, who had been diabetic for six years. Sufficient insulin had been given and was being given at the time to control the sugar. Antitoxin (10,000 units) was administered a few hours after development. The child became worse, sank into coma, and died within twenty-four hours. Is antitoxin contraindicated under such conditions?

D. M. LAWSON, M.D., Nowata, Okla.

ANSWER.—There is no available literature that says that antitoxin is contraindicated for a patient taking insulin. On the other hand, it is well known that any infection, even a mild one, rapidly and markedly destroys the potency of insulin. Therefore, when an infection of any sort occurs in a diabetic patient during treatment, unusually drastic procedures should be employed to combat the infection.

THE TUCKER ASTHMA NOSTRUM AGAIN

To the Editor:—One of my patients, who has been afflicted with "bronchial asthma" for several years, has recently been using a nasal spray called "Dr. Tucker's Asthma Cure," which is marketed by Dr. Nathan Tucker, Mount Gilead, Ohio. The label states that the preparation contains 5 grains of cocaine to the ounce. Can you explain how this product is marketed without violating the narcotic law? Please omit name.

F., Illinois.

To the Editor:—I wish to ask about the alleged asthma cure sold by the Dr. Nathan Tucker Laboratory of Mount Gilead, Ohio. The bottle of solution that a patient showed me was marked 5 grains of cocaine to the ounce. I wonder how this is sold to people at a distance. If published, do not use name.

W., Iowa.

To the Editor:—Enclosed is a sample of asthmatic nasal spray used by a patient of mine. I suspect that it contains cocaine, as the patient shows pronounced symptoms of the cocaine habit. He has taken this for years but now his condition is alarming.

District Health Superintendent, Illinois.

To the Editor:—One of my patients is a sufferer from chronic asthma. In some way or other he got in touch with the Dr. Nathan Tucker Laboratory of Mount Gilead, Ohio. He paid them $12.50 and received an atomizer with 2 ounces of brown liquid, labeled as containing 5 grains of cocaine per ounce. The label states it to be "Dr. Nathan Tucker's Asthma Specific." The patient states the medicine has done him no good and tells me that, in their letter, they stated that they would not send the medicine unless they were confident it would benefit him.

L. S., M.D., California.

ANSWER.—These letters are only a few of the many that have been received during the past few months regarding "Tucker's Asthma Specific." The continued exploitation of this cocaine mixture is a standing disgrace to the federal authorities. The situation has been commented on at different times in THE JOURNAL. As our correspondents state, the nostrum carries a label admitting the presence of 5 grains of cocaine to the fluidounce. When the Commissioner of Internal Revenue was asked (in September, 1922) how such a product could be sent without violating the Harrison Narcotic Law, his reply was that the cocaine in the remedy became hydrolized before it reached the public, and that when used there was either no cocaine or a very small quantity. This commissioner, at the same time, also gave a fulsome puff for the nostrum, expressing the opinion that the mail-order distribution of this product served "a great humanitarian cause" and, for that reason, the Treasury Department was taking no action. This in spite of the fact that the product obviously violates the Harrison Narcotic Law, for if it does not actually contain cocaine it admittedly contains a derivative of cocaine, to which the law also applies. Furthermore, if the product does not contain 5 grains of cocaine to the ounce, then it violates the national Food and Drugs Act in the declaration on the label that it does contain 5 grains of cocaine to the fluidounce. The tender solicitude shown by the federal authorities for this nostrum from the favored state of Ohio is a continued cause for wonder.

VALUE OF A MINERAL WATER

To the Editor:—I submit an analysis of a certain water in which I am interested. Many claims have been made, from time to time, as to the medicinal value of this water. I would appreciate it if you would be good enough to give an opinion as to whether or not such water would have any medicinal value.

Hypothetic Combinations	Parts per Million	Grains per Gallon
Potassium nitrate	1.7	.10
Potassium chloride	99.3	5.80
Sodium chloride	886.7	51.86
Sodium sulphate	944.1	55.21
Ammonium sulphate	5.6	.33
Magnesium sulphate	108.05	6.35
Magnesium carbonate	72.5	4.24
Calcium carbonate	266.3	15.57
Silica	14.5	.85
Iron oxide	0.0	0.00
Aluminum	3.0	.17

F. L. SCHRADER, Springfield, Ill.

ANSWER.—This is a moderately mineralized alkaline saline water, about half the strength of West Baden Spring number 1. It possesses diuretic and mild laxative qualities.

EFFECTS ON FETUS OF CARBON MONOXIDE INHALATION BY MOTHERS

To the Editor:—I would like what information you can give to me on the effects of carbon monoxide gas on the early months of gestation, and what effects it may have on the fetus and also on the placenta tissue during the first four or five months of pregnancy.

JAMES F. TAYLOR, M.D., Sioux City, Iowa.

ANSWER.—There appears to be no experimental evidence bearing on this question, and scarcely more clinical or pathologic observations. What can be said on the matter, therefore, must be derived chiefly from general considerations. In general, embryonic tissues and the child, even at full term, have a high degree of resistance to asphyxiation. It is probable that no degree of asphyxiation which did not kill the mother would kill the child at any stage of pregnancy. It is also probable that a fairly prolonged but not fatal carbon monoxide asphyxia which might leave the mother with permanent nervous degenerations would leave the child unaffected, as its nervous system is not sufficiently developed to be so acutely sensitive to asphyxiation as is the nervous system of the adult. It is possible, although not likely, that premature labor and abortion might result from the asphyxiation. In general, the placental tissues and the fetus during the early months would be rather less liable to injury than such organs of the mother as the liver and the kidney. Haggard has shown that the chick embryo, before the circulation is developed, can live and grow in an atmosphere of 80 per cent carbon monoxide and 20 per cent oxygen. Even after the placental circulation has developed fully, carbon monoxide would penetrate more slowly to the fetus than it would to the organs of the mother.

QUININE AND UREA FOR INJECTION — DECINORMAL SOLUTIONS

To the Editor:—1. On page 196 of Babcock's Surgery he mentions the injection of a 35 or 50 per cent solution of quinine and urea for treatment of a mole. Kindly advise if this is correct, that is, if the percentage of solution is correct. 2. Also in many places in the text, particularly in postoperative treatment on page 589, he mentions decinormal solution of saline solution by hypodermoclysis. What does he mean by decinormal?

A. L. H. MACNEILL, M.D., Shaunavon, Sask.

ANSWER.—1. As 1 part of quinine and urea hydrochloride is soluble in 0.9 part of water at 25 C., such strength of solution

is practicable; and, as the obvious aim of the treatment is to kill tissue, the concentration is not excessive, if the injection is placed skilfully and conservatively.

2. A tenth normal solution is meant, containing, for instance, 5.846 Gm. of sodium chloride in 1,000 cc.

ZONITE DECLARED MISBRANDED

To the Editor:—What is the action of the Council on Pharmacy and Chemistry on the preparation Zonite, manufactured by the Zonite Products Company of New York? The claims for the preparation appear preposterous.

L. M. P., Winnetka, Ill.

ANSWER.—Zonite is another of the many hypochlorite preparations which arose from the work of Carrel and Dakin during the war. Zonite was first put on the market in 1916, by a firm called the "Foose Chemical Co." Later it was advertised like a typical "patent medicine" under the firm name of the Zonite Products Company of New York. The propaganda for Zonite is, in effect, capitalization on the work of Carrel, Dakin and others, and the method of exploitation has been that typical of the nostrum business.

Chemically, Zonite, after dilution with equal parts of water, is claimed to be essentially the same as surgical solution of chlorinated soda. According to a recent notice of judgment, Zonite was declared misbranded in that certain statements were false and misleading.

The following is taken directly from the notice of judgment issued in September, 1929:

"Analysis of a sample of the article by this department showed that it consisted essentially of a solution of sodium hypochlorite, yielding approximately 1 per cent of available chlorine.

"It was alleged in the libel that the article was misbranded in that the following statements were false and misleading: (Booklet) 'Pimples, Boils, Eruptions, etc. . . . apply a dilution of 1 part Zonite to 5 parts warm water frequently to cleanse and remove pus . . . Noxious body odors are frequently due to germs infecting the sweat glands. Zonite neutralizes the odors and destroys the germs. . . . Antisepsis of Nose and Throat.'

"Misbranding was alleged for the further reason that the following statements regarding the curative and therapeutic effects of the article were false and fraudulent, since the said article contained no ingredient or combination of ingredients capable of producing the effects claimed: (Carton) 'Skin infections . . . A careful reading of the booklet in this carton will show Zonite to be a household necessity for aiding in the prevention of many communicable diseases;' (Bottle label) 'Dandruff . . . Halitosis . . . Wounds . . . Ulcerations;' (Booklet) 'Since Pasteur proved that contagious diseases and infection of wounds are caused by malignant bacteria, Medical Science has done its utmost to guard mankind from germ attack. But physicians have been hampered in their efforts by this fact. . . . During the Great War two scientists developed a solution for the treatment of wounds—nonpoisonous and noncaustic, yet a powerful germicide. This discovery reduced infection of wounds in Allied hospitals from 75 to 1 per cent. . . . Now the great discovery is available for general use. Zonite is a concentrated and stabilized solution of the active principle of the Great War antiseptic. . . . Antisepsis of Skin Tissues. A whole and healthy skin is Nature's best defense against bacteria. Every break invites infection and should be immediately disinfected. Wounds . . . Injuries of this character may result in serious blood poisoning. . . . For serious wounds and burns use Zonite as above for first aid and call a physician. Pimples, Boils, Eruptions, etc.: These frequently indicate systemic disorders. Each sore or pimple contains pus filled with germs. If the infection is due to systemic trouble, medical treatment is advisable. Surface infection, however, may usually be controlled in the home. Apply a dilution of 1 part Zonite to 5 parts warm water frequently to cleanse and remove pus. . . . Authorities state that dandruff largely results from germs. These may be removed and kept from the scalp. . . . For prevention. . . . Noxious body odors are frequently due to germs infecting the sweat glands. Zonite neutralizes the odors and destroys the germs. . . . Antisepsis of Nose and Throat. Germs of . . . influenza, pneumonia, etc., find excellent conditions for growth on membranes of the nose and throat. Frequent cleansing and disinfection are needed to kill harmful bacteria and prevent serious disease. . . . Catarrh, Sinus Trouble: Nasal catarrh is an infected condition of secretions accumulated in the nasal passages. Sinus trouble and deafness may follow neglect . . . then increase the strength of the solution to assure proper antisepsis. . . . Sore throat: At the first feeling of distress or dryness in the throat, resort should be made to Zonite. Gargle . . . at two or three hour intervals until discomfort has passed. The Tonsils: Prompt germicidal treatment is a valuable aid in preventing tonsillitis. On experiencing discomfort in swallowing or pain in the tonsils, gargle . . . periodically till relieved. . . . Antisepsis of Mouth and Teeth. The mouth attracts more germs than any other part of the body. Some are breathed in—others are bred in the decomposition of food particles which cling to the teeth. Saliva and other natural defenses of the healthy body do not suffice to prevent mouth troubles under present conditions of living. Regular disinfection must be practiced to maintain health. . . . Pyorrhea is a germ-disease of the gums, causing falling-out of the teeth and producing pus responsible for serious disturbances in the blood, heart, kidneys and intestinal tract. . . . Zonite, however, is a valuable aid in preventing pyorrheal infection. . . . In cases of established pyorrhea, pure Zonite may be advantageously applied with cotton swab to the gum margins where pus and bleeding appear. . . . Trench Mouth, Stomatitis: Trench mouth is a serious bacterial infection of the oral membranes. Stomatitis manifests itself in white patches or canker sores caused by intestinal derangement or unclean conditions in the mouth. . . . White patches and sore should be swabbed with Zonite full strength. . . . Halitosis: Zonite destroys the germs responsible for annoying breath odors. . . . Its physiological properties tend to stimulate the natural secretion of mucus and serum, which are necessary in maintaining a healthy condition and proper functional balance . . . but it is recommended for antiseptic cleansing. . . . Hemorrhoids, Piles: To prevent germ infection the parts should be frequently washed with soap and warm water. After cleansing, a lotion of 1 part Zonite to 5 to 20 parts warm water may be applied. Enema: The increasing use of the enema is a hopeful indication of growing public interest in prevention of disease."

Zonite has been exploited to both the physician and the public. It goes without saying that it has not been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies.

It is also noteworthy that some periodicals still carry advertising of Zonite. What excuse will their editors offer in the face of the notice of judgment issued by the U. S. Department of Agriculture?

TREPARSOL

To the Editor:—Kindly compare the value of treparsol, an arsenical given by mouth, with a standard arsenical given intravenously in the treatment of syphilis. Also discuss the use of mercurochrome in the treatment of lobar pneumonia. Please omit my name.

M.D., Florida.

ANSWER.—Treparsol differs from the better known acetarsone in that it has a formyl group in place of the acetyl group of acetarsone. Its oral use, as is also true of that of acetarsone, in the treatment of syphilis is not supported by adequate evidence. The same may be said of the use of mercurochrome-220 soluble in the treatment of lobar pneumonia. Treparsol has not been accepted by the Council on Pharmacy and Chemistry.

DANGERS OF WORK WITH DENATURED ALCOHOL

To the Editor:—Is there much danger to a workman who is using one of the government denatured alcohol formulas which contains 10 parts of wood alcohol? For instance, formula 1 contains 100 parts by volume of ethyl alcohol, 10 parts by volume of approved wood alcohol (denaturing grade), and 5 parts by volume of approved benzine (kerosene)? One of the reasons I ask this question is that the inhalation of the fumes of wood alcohol has been known to cause serious visual disturbances, and I wonder just how much harm might result from the use of this formula in combination with an equal amount of carbon tetrachloride, the mixture to be used as a cleansing agent for type.

HALSTEAD G. MURRAY, M.D., Framingham, Mass.

ANSWER.—If this type of cleaning fluid is used under conditions of poor ventilation, and in such quantities as to provide considerable evaporation, harm to exposed workmen may be expected.

The two substances regarded as potentially dangerous are carbon tetrachloride and methanol. In the application of coatings where large surfaces for evaporation are provided, as little methanol as 2 per cent in a coating mixture has proved deleterious to painters. Definite methanol intoxication has resulted. Given a 10 per cent admixture with ethanol in this type of cleaner, it is reasonable to anticipate bad results unless ventilation is good.

In a measure the federal government may be responsible for this hazard. Denaturing with lower quantities of methanol, such as 2 per cent, is said to carry with it so many restrictions as to bonding as to pave the way for the use of greater denaturing with higher percentages. Of this situation, Alice Hamilton mentions

government regulations which are much more onerous in connection with the 2 per cent than the 10 per cent (methanol as a denaturant), requiring that the alcohol be kept in a bonded warehouse, that only specified quantities be taken out at a time, etc. It is very deplorable that the government should discourage the use of the safer formula.

Methanol in mixture with ethanol (ethyl alcohol) is said (Pantaleoni: *Ann. Igiene* **37**:537 C. A. 22, 3928) to possess a greater toxicity than is true for either methyl or ethyl alcohol.

The total quantity of this mixture, of which carbon tetrachloride constitutes a half, is not mentioned in the query. Assuming that this is not limited to a few cubic centimeters and that exposure is extensive, the carbon tetrachloride is to be accepted as an additional, distinct source of harm.

The use of this type of cleaner is not favored, as, undoubtedly, a less toxic cleaner may be satisfactorily utilized. If, in fact, the Internal Revenue Department, in its administration of the Prohibition Act, is promoting industrial poisoning of any sort, this practice is to be condemned.

TIME FOR INOCULATING INFANT AGAINST SMALLPOX AND DIPHTHERIA

To the Editor:—I have recently become connected with a clinic which is going to immunize a large number of infants and children against smallpox and diphtheria. The question has come up as to how early an infant can be satisfactorily vaccinated and when the diphtheria inoculations should be given. As to the latter, some say at 6 months, others at 1 year. Then, too, can an infant receive the inoculations for diphtheria immunization a week apart, and then be vaccinated at the time the last inoculation is given? In other words, is a good immunity developed against smallpox and diphtheria if the immunization procedures are carried out at the same time? C. E. JOHNSON, M.D., St. Paul.

ANSWER.—Infants may be given diphtheria toxin-antitoxin toward the end of the first year of life. The same applies to vaccination against smallpox, except in the presence of immediate danger of exposure, when it may be carried out at any age. In general, it is probably best to allow one immunizing process to be completed before starting a second one.

TREATMENT OF INFANTILISM

To the Editor:—Could you give any suggestions as to the treatment of infantilism in a girl of 17? MARK GREER, M.D., Vandalia, Ill.

ANSWER.—When one considers the complexity of this condition, the numerous factors that may cause infantilism, it is obvious that a categorical reply is well nigh impossible. There is hardly a topic in the medical literature concerning which there is less definite knowledge.

Infantilism was first used by Lasegne to describe a persistence in the adult of the physical and mental characters of the child. Falta defines it as a stationary stage of infantile development.

Under the term "infantilism" are included conditions of widely varying causation in which the physical and mental development relative to the actual age presents an abnormally youthful habitus. Thus the condition may be due to endocrine disturbances, either monoglandular (myxedema, genital atrophy, pituitary disease), or pluriglandular (pituitary and genital gland, pituitary, genital and thyroid, visceral glands, particularly suprarenal). There is an intestinal form called Herter's infantilism. There may also occur an infantile dystrophic form associated with aplasia of the nervous, cardiovascular or hematopoietic system. Then, again, infectious or toxic conditions in the parents may lead to infantile development in the offspring, as occurs with syphilis, alcoholism, lead poisoning or mercury poisoning.

De Sanctis differentiates sharply between the Lorain and the Brissand type of infantilism. The former he ascribes to various types of injury to the organism as occurs in vascular hypoplasia, tuberculosis, chlorosis, syphilis, malaria or pellagra in the parents, and a disturbance in the harmonious cooperation of the endocrine glands. The Brissand or myxedematous type is thought to be due to thyroid inadequacy. The generative organs are conspicuously infantile, and the osseous and general development are backward. However, with increasing knowledge as to the multiplicity of etiologic factors associated with infantilism, the differentiation between the Lorain type and the Brissand type has lost its significance.

Hastings Gilford regards ordinary infantilism as a morbid condition which may be set up by many causes. Just as in old age the important organs first to degenerate are usually the cardiovascular, the generative or the thyroid, so also in infantilism these organs are often the first to lag behind, but may occasionally be preceded by the pancreas, liver or brain.

The later fate of true infantilism has not as yet been thoroughly studied. It is known that the patients show an especial disposition for various diseases and mostly die prematurely. Also their mentality seems to suffer under the rough influences of life and severe conflicts.

The treatment in the true forms as yet is almost hopeless. Thyroid gland and pituitary gland may yield slight results in the mixed forms. True infantilism usually shows a lower tolerance for thyroid preparations.

ULTRAVIOLET RADIATION AND ALOPECIA

To the Editor:—In the case of alopecia universalis, commencing as a typical alopecia areata over a number of years and associated with loss of the eyebrows, is ultraviolet radiation of any assistance? What is the accepted theory, if any, as to the causation of this condition in a woman aged about 30? Will you please omit my name. M.D., New York.

ANSWER.—Ultraviolet rays would be of questionable value in a case of alopecia areata totalis of three years' duration. There is no generally accepted theory as to the causation of this disorder. The parasitic, trophoneurotic and toxic theories have not been proved. Emotional strain, nervous shock and severe illness apparently account for some cases. Disturbances of the sympathetic or endocrine systems should be looked for.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

COLORADO: Denver, Jan. 7, 1930. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

DELAWARE: Wilmington, Dec. 10-12, 1929. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington, Del.

DISTRICT OF COLUMBIA: Washington, Jan. 13, 1930. Health Officer, Dr. W. C. Fowler, District Bldg., Washington, D. C.

KANSAS: Topeka, Dec. 10, 1919. Sec., Dr. Albert S. Ross, Sabetha, Kan.

LOUISIANA: New Orleans, Dec. 12-14, 1929. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans, La.

MARYLAND: Baltimore, Dec. 10-13, 1929. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore, Md.

NATIONAL BOARD: Feb. 12-14, 1930. In all centers where there are five or more candidates. Dir., Mr. E. S. Elwood, 225 South Fifteenth St., Philadelphia, Pa.

NORTH DAKOTA: Grand Forks, Jan. 7-10, 1930. Sec., Dr. G. M. Williamson, Grand Forks, N. D.

OREGON: Portland, Jan. 7-8, 1930. Sec., Dr. Joseph F. Wood, 510 Selling Bldg., Portland, Ore.

PENNSYLVANIA: Philadelphia, Jan. 7-11, 1930. Bedside examination last two days in various Philadelphia hospitals. Dir., Dr. D. C. Koch, Harrisburg, Pa.

SOUTH DAKOTA: Huron, Jan. 21-22, 1930. Dir., Dr. H. R. Kenaston, Bonesteel, S. D.

UTAH: Salt Lake City, Dec. 17-18, 1929. Director, Mr. S. W. Golding, 412 State Capitol Bldg., Salt Lake City, Utah.

WASHINGTON: Seattle, Jan. 9-10, 1930. Basic Science. Dir., Mr. Charles Maybury, Olympia, Wash.

WISCONSIN: Milwaukee, Dec. 14, 1929. Basic Science Sec., Prof. Robert N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis. Madison, Jan. 14-16, 1930. General Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

Oklahoma September Examination

Dr. J. M. Byrum, secretary of the Board of Medical Examiners of the State of Oklahoma, reports the written examination held at Oklahoma City, Sept. 10-11, 1929. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Five candidates were examined and passed. Fourteen physicians were licensed through reciprocity with other states, 1 by endorsement of credentials, and 1 was granted a duplicate license. The following colleges were represented:

PASSED		
College	Year Grad.	Number
Northwestern University Medical School	(1928)	1
University of Wisconsin Medical School	(1929)	3
University of Glasgow Faculty of Medicine	(1922)	1

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1910) (1929)	Arkansas
Howard University Medical School	(1928)	Kansas
Northwestern University Medical School	(1929)	Kansas
Rush Medical College	(1927)	Illinois
University of Indiana School of Medicine	(1925)	Indiana
State University of Iowa College of Medicine	(1924) (1925)	Iowa
Tulane University School of Medicine	(1912)	Kansas
University of Minnesota Medical School	(1927)	Penna.
Washington University School of Medicine	(1924)	Missouri
Western Reserve University School of Medicine	(1925)	Ohio
Memphis Hospital Medical College	(1900)	Arkansas
Baylor University College of Medicine	(1928)	Texas

ENDORSEMENT OF CREDENTIALS		
Northwestern University Medical School	(1929)	N. B. M. Ex.

Massachusetts March Examination

Dr. Frank M. Vaughan, secretary of the Board of Registration in Medicine of the State of Massachusetts, reports the oral, written and practical examination held at Boston, March 12-14, 1929. The examination covered 17 subjects and included 70 questions. An average of 75 per cent was required to pass. Eighty-three candidates were examined, 47 of whom passed and 36 failed. Eighteen physicians were licensed by endorsement of credentials. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent
Rush Medical College	(1904)	78.6, (1914) 89.8
Johns Hopkins University School of Med.	(1920)	90, (1926) 88
Boston University School of Medicine	(1927)	75
College of Physicians and Surgeons, Boston	(1924)	75.3
Harvard University Medical School	(1924)	82.9, (1927) 78.5, 78.8, 80.7, 85.9, 86.5, 88.3, (1928) 84.7, 88.2, 91.1
Middlesex College of Medicine and Surgery	(1923)	75, (1927) 78.9
Tufts College Medical School	(1923)	75, (1928) 78.9, 80.1, 80.4, 83.2

Kansas City University of Phys. and Surgs.	(1926) 75, (1928)	76.5
St. Louis University School of Medicine	(1928)	79.7
Columbia University College of Phys and Surgs	(1928)	85
Cornell University Medical College	(1925) 76.2, (1928)	80.5
University of Virginia Dept. of Med.	(1923) 83.2, (1925)	76.7
University of Montreal Faculty of Med.	(1922) 78, 75.6, (1928)	77.7
Queen's University Faculty of Medicine	(1908)	77.9
Royal University of Padua	(1917)*	75
University of Coimbra Faculty of Medicine, Portugal	(1920)*	75
Osteopaths	75, 75, 75.6, 76, 77.4, 78.9,	79.6
Nondescript †	75.5, 76.1,	77.7

FAILED

College	Year Grad.	Per Cent
College of Physicians and Surgeons, Boston	(1927)	65.6
Middlesex College of Medicine and Surgery	(1921) (1924) 61.8, (1926) 60.4, 66.4, (1927) 67.1, 67.7, 69.4, 70.7, 71.1, (1928) 59, 60.2	71.7,
Kansas City University of Physicians and Surgeons	(1927) 38, (1928) 53.7	57.5,
St. Louis College of Physicians and Surgeons	(1923)	55.8
Laval University Faculty of Medicine	(1925)	58.2
University of Athens Faculty of Medicine	(1914) 52.9, (1917)	62
Osteopaths	‡, 43.5, 57.9, 58.4, 59.5, 63.9, 65, 66.9, 67.1, 67.7, 68.1, 72.4, 72.9	62.8,
Nondescript †	60.7, 68,	68.8

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
Yale University School of Medicine	(1925)	N. B. M. Ex.
Harvard Univ. Med. Sch.	(1925) (2), (1926) (4), (1927) (8)	N. B. M. Ex.
Tufts College Medical School	(1925)	N. B. M. Ex.
St. Louis University School of Medicine	(1926)	N. B. M. Ex.
Columbia Univ. College of Physicians and Surgeons	(1924)	N. B. M. Ex.

* Verification of graduation in process.
† Medical Schools not recognized by the American Medical Association.
‡ No grade given.

Book Notices

THE MAN A WOMAN MARRIES: Problems in Consideration. By Victor Cox Pedersen, A.M., M.D., F.A.C.S. Cloth. Price, $3. Pp. 266. New York: Minton Balch & Company, 1929.

This volume is a corollary to the author's previous book, "The Woman a Man Marries," based on cases seen in his practice and on a definite knowledge of the anatomy and physiology of sex. The author endeavors to analyze the problems that confront modern marriage and bring about disappointment and disturbance. He introduces his book with a description of the biologic processes and points out that a failure to understand these things is many times the basis of disorder in human relationship. This is not, however, in any sense of the word a medical work. It is a commentary by a physician on social aspects of marriage practice and on laws developed by custom and by legislators to control modern life. As is commonly emphasized by all persons advanced in years who have seen the tribulations of our modern world, economic factors are more likely to be of importance in the long run than matters of emotion. Pedersen considers all unusual forms of marriage, such as contract marriage, birth control and similar practices, as fads. His concluding statement is an appeal to youth to respect the wisdom of old age.

THE FEMALE SEX HORMONE. Part I: Biology, Pharmacology and Chemistry. Part II: Clinical Investigations Based on the Female Sex Hormone Blood Test. By Robert T. Frank, A.M., M.D., F.A.C.S., Gynecologist to Mount Sinai Hospital, New York. Cloth. Price, $5.50. Pp. 321, with 86 illustrations. Springfield: Charles C. Thomas, 1929.

This book, which is based on twenty-five years of laboratory and clinical research performed by Robert T. Frank and a large number of collaborators, is divided into two parts. The first deals with the biology, pharmacology and chemistry of the female sex hormone and in this section the author also discusses the history of the subject and the chronology of achievement. The second part is concerned with the application of the female sex hormone to clinical medicine. All the important literature on the subject of the sex hormone is reviewed, as evidenced by the 528 references listed in the bibliography. Most of the work on the female sex hormone has been done during the last few years, and Frank discusses the evolution of the hormone, beginning with the work of Beard (Born-) and of Fraenkel, who called attention to the corpus luteum as a gland of internal secretion; then he discusses the prophecy of Halban and the important contributions of Leo Loeb, Iscovesco, Stockard and Papanicolaou, Morau, Lataste, Allen and Doisy, Loewe, Philip Smith, Zondek and Aschheim, in addition to the work performed by himself and Goldberger. In the latter part of the book is a discussion of the most popular pharmaceutic preparations which are supposed to have an effect on ovarian and uterine function. Frank found that all of these were entirely inactive. Of organotherapy he says, "Of the organotherapeutic preparations the sole one on which I really rely is thyroid substance." The book contains a wealth of useful laboratory and clinical information and should be in the library of every gynecologist.

A GRAPHIC GUIDE TO ELEMENTARY SURGERY. By Prof. Dr. Th. Naegeli. Translated by J. Snowman, M.D., M.R.C.P. With introduction by Dr. C. Garré. Cloth. Price, $5. Pp. 206, with 322 illustrations. New York: William Wood & Company, 1929.

The chief purpose of the writer is to emphasize the fundamental points in surgery by well selected graphic illustrations. These are numerous and well chosen, many of them being colored. The text consists of a few paragraphs on the commoner surgical conditions. The subjects considered are those included in the larger textbooks. They include anesthesia, infections, hemorrhage, wounds and their treatment, healing of tissues, infection, injuries and diseases of bone, tumors, methods of examination, and forms of surgical treatment. While the material and arrangement are satisfactory, such a graphic epitome is of doubtful value since such fundamentals need to be more completely described to have much teaching value.

ENTSTEHUNG UND ENTWICKLUNG DER LUNGENSCHWINDSUCHT DES ERWACHSENEN. Von Franz Redeker und Otto Walter. Second edition. Paper. Price, 24 marks. Pp. 275, with 168 illustrations. Leipzig: Curt Kabitzsch, 1929.

This is a compilation of various theories of the origin and development of tuberculosis of the lungs in the adult. However, it is not entirely a compilation; the theories and views discussed by the authors are carefully analyzed and criticized. Certain views of the authors are based on painstaking studies over a lengthy period and, as such, merit thoughtful attention. That the work is timely is shown by tables which indicate errors in diagnosis in as many as 92 per cent of one series of cases. Aschoff's theory of reinfection is discussed at length, together with Redeker's own views on the subject. Closing this chapter, the authors suggest that, because of evident contradictions in argument and theory, the clinician might as well let the whole matter alone. The subject of the duality of pulmonary tuberculosis is given considerable space and is interestingly presented. The duality of tuberculosis of the lungs refers to two forms of the disease, the exudative and the productive (or cirrhosing). Under the term "duality" the profession in America may not recognize the pathologic entity, although the processes themselves, soft infiltration and connective tissue formation, are well known. The writers have used much film in support of their views as well as to present an accurate portrayal of the entire process of the development of tuberculosis of the lungs. This wave process (der Schub) is explained in the "new teaching," which is given in extenso. Frequent serial roentgenograms are held to be a sine qua non in the accurate following and interpretation of these pathologic processes. The progress of the disease process, which marches in waves with intervening periods of standstill, coincides with those periods of exacerbation and remission which are so familiar to those who have seen much of tuberculosis. The idea is presented in an attractive manner, although one might not concede that it is altogether new. There are numerous roentgenograms in the book and a generous bibliography. There is abundant evidence of painstaking attention to detail which helps to a thorough understanding of the subject studied.

DENTAL HISTOLOGY AND EMBRYOLOGY. By B. Orban, M.D., Professor of Dental Histology and Pathology, Chicago College of Dental Surgery. Second edition. Cloth. Price, $4. Pp. 218, with 201 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1929.

The main feature of this book is the illustrations, of which 162 are photomicrographs of sectioned human specimens. The selection and technical treatment of the material are excellent, and the photography and reproduction are of the same high grade. The proportion between text and illustrations is such as to suggest that the work should be classed as an atlas rather than a treatise; as such, it supplies a conspicuous deficiency in American books. Throughout, the author is prone to make rather dogmatic statements concerning controversial matter and is devoted to expounding and defending the views of the

school of thought to which he is attached. For example, on page 103 he says: "After the tip of the crown appears in the mouth, the tooth eruption proceeds steadily until the tooth comes into occlusion. After this point is reached it is generally considered that eruption is completed. This conception also is false, as has been demonstrated by Gottlieb." According to the author, this is only the first phase of eruption; three later stages are described. The nature and significance of the epithelial attachment and the development of the dentin are disposed of in a no less dogmatic fashion, although the conclusions arrived at do not differ materially from the generally accepted beliefs, as is the case with the eruption theory of the author. While some fault may be found with the arrangement of the material, this is not so serious as the failure to present the subject matter clearly. This is, in part, due to the relative unfamiliarity of the author with the English language. For example, he states on page 165, in italics: "The physiologic movement of the teeth takes place not only toward the median line, but also toward the occlusal line; that is, the tooth actually becomes longer." It is, of course, rather absurd to say that a fully developed tooth actually becomes materially longer. The presentation is particularly disappointing from the standpoint of the introduction, which promises a broad, clear treatment particularly adapted to the needs of the beginning student. The book is divided into eight chapters, on enamel, pulp and dentin, cementum, epithelial attachment and gingival crevice, periodontal membrane, alveolar bone, shedding of the temporary teeth and development of the teeth. Although frequent references are made to other authors, these are not connected by footnotes or numbers to the short bibliography following the last chapter.

THE PSYCHOLOGY OF HAPPINESS. By Walter B. Pitkin. Cloth. Price, $3. Pp. 419. New York: Simon & Schuster, 1929.

This book is written in popular style. It has an appealing topic for its subject and it makes entertaining reading. The author's thesis is that happiness—although he does not put it in these words—consists in adapting oneself successfully to one's surroundings. This he discusses through many chapters, under the headings of the blessed, the accursed, the happy—more or less, and so on. In considering his topics, his plan is to make a generalization and illustrate it by many individual examples. Many of these are unidentified, others are historical figures. He does not make as much of his historical figures as might have been expected and he molds their characteristics to suit his purpose of illustration. There is a good deal of worldly wisdom about happiness in the book and a good deal of clever superficiality. It is a suggestive book and it is interesting, but in the form in which it is presented it is more of a journalistic exercise than a psychologic research.

HUMAN HELMINTHOLOGY: A Manual for Clinicians, Sanitarians and Medical Zoölogists. By Ernest Carroll Faust, Ph.D., Professor of Parasitology in the College of Medicine of Tulane University. Cloth. Price, $8 net. Pp. 616, with 297 illustrations. Philadelphia: Lea & Febiger, 1929.

The appearance of a new book in this field will be greeted today with a more critical eye than would have been the case a few years ago, when texts written in English were not existent in this field. But, however critically examined, the new work justifies fully the critic's demands. The author, for nearly a score of years a student in this field, has spent the major part of that time as helminthologist at Peiping Union Medical College, China. There he had unusual opportunities for study in the field and manifold contacts with clinicians and sanitarians. His monographs on important problems of helminthology are models, and his treatment, in this work, of the various subjects covers the different aspects in a fashion that will elicit general approval. The book has been prepared with a view to its use in teaching and is well adapted to that purpose. At the same time it will be valuable to workers as a reference book by virtue of the wealth of material it contains. The book begins with a section on general helminthology, devotes a section to flatworms and another to roundworms, and closes with one on helminthology and the diagnostic laboratory which will be highly appreciated as it treats of equipment, methods, differential diagnosis, intermediate hosts and transmitting agents. The style of the author is clear, though highly condensed. The illustrations for the greater part are new and the work has been edited with unusual care.

PRINCIPLES OF PATHOLOGY FOR PRACTITIONERS AND STUDENTS. By H. D'Arcy Power, M.D., F.R.P.S., Professor of Pathology, College of Physicians and Surgeons, San Francisco, and William W. Hala, M.D., Assistant Professor of Pathology, Long Island College Hospital, Brooklyn. Cloth. Price, $10. Pp. 787, with 298 illustrations. New York: D. Appleton & Company, 1929.

The authors state that "in offering the medical world one more treatise on pathology, it would seem necessary, if not to make an apology, at least to give an explanation." The explanation they give is that the book has been written "from the instructor's standpoint" and an effort made to present matters "concisely and consequentially, concentrating on the diseases that are likely to come within the range of general practice and relegating rarities to brief reference." These purposes have been executed, and a good amplified and expensive students' manual or compend of both general and special pathology is the result. The authors have not attempted to write another textbook on pathology of the type—of which there are already several—represented by MacCallum's work or that by Kaufmann recently published in English. Following the preface is a foreword by Dr. Charles Norris, well known as the chief medical examiner of the city of New York. In this Dr. Norris says, "The work has evidently been written for the use of medical students and general medical practitioners rather than for expert pathologists." He refers to the work as "individualistic" and as one in which "the problems of pathology are presented in a new and novel form." This novelty is mainly shown in the use of numbered sections, 1,077 altogether, each with a title in heavy type. The index is to the section numbers instead of to pages. The substance of a few sections is only remotely connected with their captions. Many sections are short paragraphs of a few lines. There is consequently a skeletonizing of information which appeals to students alive to abridgments and keen for mere essentials. There are a few excellent illustrations but most of them are poor, many not the equivalent of good drawings by students in routine class work. The style is vigorous and clear. The authors announce that "there is very little that cannot be said in plain English, and that is how we prefer to say it." A great many paragraphs begin with a question; e. g., "What has happened? The toxic symptoms have disappeared, that much is certain. But by what means? That is still a question" (p. 438). "Let us consider briefly," "We are now ready to consider," "Let us see if this is so," are a few of many expressions scattered here and there adding a tone of amiability to the discussions. The authors have evidently had a wide experience. Professor Power expresses his great indebtedness to Askanazy of Geneva and Aschoff of Freiburg. The brief accounts of disease, its causation and sequences, in general, are reliable. Short, useful comments about normal structure, physiology, chemical pathology and symptoms accompany some of the chapters on special pathology. The term "principles" in the inside title and omitted from the back is justified, for there is more of elaboration of outlines and classifications than there is curtailing of details. One often enjoys a stroll along a country lane in order to reach and remain for a time with wonder-compelling vistas, and we may anticipate that this huge compendium will find its usefulness limited to an introduction to the study of pathology. Modern physicians retain the rudiments of pathology and consult works, monographs and journals; outlines they make themselves from extensive treatises are still preferred by many students.

THE HISTORY AND TRADITIONS OF THE MOORFIELDS EYE HOSPITAL: One Hundred Years of Ophthalmic Discovery and Development. By E. Treacher Collins, Consulting Surgeon. Cloth. Price, 12/6 net. Pp. 226, with 27 illustrations. London: H. K. Lewis & Company, Ltd., 1929.

The Moorfields Eye Hospital, founded in Great Britain more than a hundred years ago, has been intimately associated with all the great developments in ophthalmology, so that a record of its history is similar to some extent to the history of the specialty itself. In order to orient properly the relationship of the hospital to the work, the authors supply other facts of importance in the history of the eye. Here one finds an account of the discovery of the ophthalmoscope and of the use of antiseptics in the surgery of the eye. Here is a record of the application of the giant magnet to the removal of the foreign body. The book is fully illustrated with portraits and photographs and provides all the facts without becoming monotonous.

Medicolegal

Malpractice: Claim for Damages Not a Debt.—Dr. Wilson performed "an operation for tonsillitis," June 6, 1919. The patient died the following day. Dr. Wilson died in September, 1924. In October, 1925, twelve months after Dr. Wilson's death and more than six years after the death of the patient, the patient's administrator brought suit against Dr. Wilson's executor, based on Dr. Wilson's alleged malpractice in connection with the operation and the after-treatment. A judgment of non-suit was entered, when Dr. Wilson's executor pleaded that the suit was barred by section 369 of the South Carolina Code of Civil Procedure, which provides that such actions must be brought within six years. But, the patient's administrator contended, on an appeal to the supreme court of South Carolina, the operation of the statute was stopped for twelve months after Dr. Wilson's death, by section 374 of the code, which inhibits the commencement of actions against an executor or an administrator for the recovery of the "debts" due by the testator or intestate until twelve months after the testator's or intestate's death. Those twelve months, he contended, could not be counted in determining when the period limited by the statute of limitations expired. The court held, however, that a claim for damages resulting from a wrongful act or wrongful neglect, is not a "debt" and cannot become so until it has been prosecuted to judgment. The administrator of the deceased patient might therefore have commenced suit within twelve months following Dr. Wilson's death, and that period must be included in determining when the right of action expired by limitation. The supreme court affirmed the judgment dismissing the suit.—*Newman v. Lemmon et al. (S. C.), 147 S. E. 439.*

Evidence: Verification of Hospital Bedside Notes Offered in Evidence.—The original memorandum made at the hospital to which the plaintiff was taken immediately after a collision between a street car and a vehicle in which he was riding showed that he was brought there in an intoxicated condition and that a wound caused by a previous accident had never healed and was continually discharging. The physician who was summoned to the scene of the collision testified that the plaintiff had not been drinking; that there was no discharging wound; that the original memorandum was incorrect and that he had not permitted it to be filed until the words "in an intoxicated condition" had been omitted; and that a patient's history sheet does not become a record of a hospital until the attending physician approves it. In corroboration of this testimony, the plaintiff introduced what was claimed to be the daily record of nurses' treatment, known as "bedside notes." These were unsigned and appeared to be in the handwriting of different individuals. These notes were introduced through a former assistant superintendent of the hospital. It had never been a part of her duty, however, to take charge of them, and as a matter of fact she had never had them in her custody. She could testify only that she believed a paper handed her by counsel for the plaintiff comprised the official bedside notes. Under the circumstances stated, said the supreme court of New Hampshire, proper verification by the record clerk would doubtless have rendered the bedside notes admissible. When the notes were offered in evidence, however, it did not appear that there was any official custodian of such records. The person offered as the verifying witness had neither made the notes nor kept them and did not pretend to vouch for their authenticity. So far as then appeared, said the court, these notes could be competently substantiated only by the nurses themselves. On the whole record, the court held that the bedside notes had been erroneously admitted and set aside the verdict.—*St. Louis v. Boston & M. R. R. (N. H.), 145 Atl. 263.*

Workmen's Compensation: Compensability for Death from Infection Through a Wound.—An employee's foot was burned by chemicals in the course of his employment. An infection of the burned surface caused his death. The insurer contended that it could not be held liable until it had been shown that the germs that caused the death entered the burned surface at a time when the employee was engaged in the course of his occupation. If the insurer's contention was sound, said the court, death from blood poisoning could never be shown to be the result of an accidental injury sustained in the course of employment, since the germs which produce blood poisoning cannot be seen, and the exact time and place of their entry into a wound can never be shown. If the entry of germs is a natural and probable sequence of the injury, the injury is the proximate cause of the death. The contention that the death in this case was due to an occupational disease and not the result of an accidental injury cannot be sustained.—*Employers' Liability Assur. Corporation, Limited, of London, England, v. Flint et al. (Texas), 14 S. W. (2d) 1046.*

Malpractice: Accrual of Cause of Action.—Any act of misconduct or negligence on the part of a physician in the service undertaken by him is a breach of contract which gives rise to a right of action in contract or tort. The statutory period of limitation begins to run at the time of the misconduct or negligence, and not when the actual damage results or is ascertained. The statute is a bar to the original cause of action and to all consequential damages resulting from the cause of action, even though such damages may be substantial and not foreseen.—*Cappuci v. Barone (Mass.), 165 N. E. 653.*

Malpractice: Burden of Proof.—The plaintiff, Goode, alleged that the defendant was negligent in performing an operation on her nose, because he did not remove at the time of the operation a splinter of bone. This splinter was discharged later through an incision made to relieve a flow of pus from the wound. From a verdict directed for the defendant, the plaintiff appealed to the supreme judicial court of Massachusetts, Middlesex. The defendant and other physicians, said the court, testified that in an operation of the kind that was performed it was impossible to obtain all particles of bone that might be made in the course of the operation. This testimony, if believed, proved the absence of negligence. If not believed, it still left the plaintiff without any direct evidence of negligence or any evidence of facts from which negligence could be justly inferred. Since the burden of proof was on the plaintiff, and she had failed to meet it by the production of evidence, judgment was directed for the defendant.—*Goode v. Lothrop (Mass.), 165 N. E. 688.*

Testamentary Capacity in Relation to Disease and Delusions.—Neither sickness, habitual alcoholism, softening of the brain, nor impaired intellect, nor all of them combined, are sufficient, standing alone, to render invalid a will. Even if the jury believe from the evidence that any one or more, or all, of these conditions existed in the testator when he executed his will, nevertheless, if they further believe and find from the evidence that at the time of executing it he was capable of recollecting the property he was about to dispose of, the persons who were the objects of his bounty, and the manner in which he wished his property distributed among them, and had an understanding of the nature of the business in which he was engaged, then the jury must find that he had legal capacity to make a valid disposition of his estate. Delusions which do not enter into the provisions of a will cannot affect its validity. Although great weight is to be attached to the testimony of medical experts, their testimony is not conclusive.—*Jenkins v. Trice (Va.), 147 S. E. 251.*

Society Proceedings

COMING MEETINGS

American Society for the Study of Disorders of Speech, New York, December 30-January 1. Dr. Sara M. Stinchfield, Mt. Holyoke College, South Hadley, Mass., Secretary.

Medical Association of Porto Rico, San Juan, December 21-23. Dr. M. Pavia Fernandez, Salvador Brau 79, San Juan, Secretary.

Society of American Bacteriologists, Ames, Iowa, December 30-January 1. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Surgical Association, Atlanta, Ga., December 10-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Del Monte, Calif., December 12-14. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Hygiene, Baltimore

10: 527-708 (Nov.) 1929

Life Histories of Diphyllobothrium Decipiens and D. Erinacei. H. C. Li, Peiping, China.—p. 527.

Hypersensitiveness to Diphtheria Bacilli: Immediate Skin Reactions of Adults to Bacterial Products in Diphtheria Culture Filtrate. J. M. Neill, L. V. Richardson, A. L. Harris, W. L. Fleming and J. Y. Sugg, Nashville, Tenn.—p. 551.

*Development of Malaria Parasites in Mosquito. W. V. King, Ithaca, N. Y.—p. 560.

Infection of Anopheles with Malaria Parasites. W. V. King, Ithaca, N. Y.—p. 565.

Significance of Aerobic Nonsporulating Bacteria Producing Gas from Lactose in Oysters and Water. C. A. Perry, Baltimore.—p. 580.

*Reinfection After Treatment with Hookworm and Ascaris in Two Villages in Panama. W. W. Cort, L. Schapiro and N. R. Stoll, Baltimore.—p. 614.

*Influence of Rainy Season on Level of Helminth Infestations in Panama Village. W. W. Cort, L. Schapiro, W. A. Riley and N. R. Stoll, Baltimore.—p. 626.

Virus of Rat Anemia: Transmission by Rat Louse, Polyplax Spinulosa. C. P. Eliot and W. W. Ford, Baltimore.—p. 635.

Oral Administration of Certain Alkyl Resorcinols and Effects on Intestinal Protozoa and Bacteria of Rats and on Intestinal Protozoa in Chicks. H. L. Ratcliffe, Baltimore.—p. 643.

Effect of Successive Radiations with Mercury Arc on White Blood Count of Normal Rabbits. M. Hardy and J. Chapman, Baltimore.—p. 655.

Effect of Age and Size of Infestation on Egg Production of Dog Hookworm, Ancylostoma Caninum. M. P. Sarles, Baltimore.—p. 658.

Length of Life and Rate of Loss of Dog Hookworm, Ancylostoma Caninum. M. P. Sarles, Baltimore.—p. 667.

Reaction and Susceptibility of Dogs of Different Ages to Cutaneous Infection with Dog Hookworm, Ancylostoma Caninum. M. P. Sarles, Baltimore.—p. 683.

Blood Changes Occurring in Young and Old Dogs During Cutaneous and Oral Infection with Dog Hookworm, Ancylostoma Caninum. M. P. Sarles, Baltimore.—p. 693.

Development of Malaria Parasites in Mosquito.—King studied the ill effects of the malaria parasite on the mosquito. So far as his observations go, little if any injury seems to result, as may be judged by the fact that of 145 specimens which were nearly dead at the time of dissection there had been little difference in the average length of life between those which had become infected and those which had not. The average (after the infective blood meal) were 16.5 days for eighty-three positives and 15.2 days for sixty-two negatives. Furthermore, no marked reduction in vitality was noted in the more heavily infected individuals. The time required for the complete development of the parasites in anophelines is usually given as nine or ten days but is subject to variation depending on the temperature to which the mosquitoes are exposed. In King's experiments, the shortest periods from the time of the blood meal to the invasion of the salivary glands with sporozoites were twelve days with estivo-autumnal parasites at a mean room temperature of 79 F. and fourteen days with tertian parasites at a mean temperature of 74 F.

Reinfection After Treatment with Hookworm and Ascaris in Two Villages in Panama.—Series of egg counts were made by Cort et al. in two villages in Panama, one partially sanitated and the other entirely without latrines, before and after treatment, the first counts coming early in the rainy season and the last after its close. It was clearly demonstrated that the group with the best sanitation showed a much less rapid reinfection with hookworm about six months after treatment than the people living in houses without latrines or where the latrines were only partially in use. The counts for *Trichuris* showed no reduction after the treatments, since the drugs given were not effective for this parasite, or changes over the period covered by the examinations that could be interpreted as fluctuations in the infestation level. In the case of *Ascaris* there was a rapid reinfection after treatment, in some groups the level at the end of the rainy season reaching a point considerably higher than the pretreatment level. In untreated groups there was also in most cases a decided increase in infestation with this parasite during the course of the rainy season.

Influence of Rainy Season on Level of Helminth Infestations in Panama Village.—Series of egg counts were made by Cort et al. in a village in Panama at the beginning, middle and end of the rainy season. There was no evidence of any increase of hookworm infestation over the seven months of the rainy season, suggesting that in this region there is no considerable loss of worms during the four months of the dry season. The *Trichuris* level was also about the same for the three series of counts. There was, however, a remarkable increase in the *Ascaris* counts in the third examination as compared with the first and second. This was especially evident in the worst "*Ascaris* families," in which the conditions were evidently favorable for the spread of this parasite. This suggests that there is a considerable fluctuation in the level of *Ascaris* infestation during the year in a region with a dry season of any considerable duration.

American J. Medical Sciences, Philadelphia

178: 593-740 (Nov.) 1929

Arthritis. R. Pemberton, Philadelphia.—p. 593.

*Management of Spastic Colon and Mucous Colopathy, Especially in Hypervagotonic Persons. L. F. Barker, Baltimore.—p. 606.

*Chronic Adhesive Pericarditis in Childhood. E. Holt, New York.—p. 615.

*Sodium Ricinoleate in Allergic Disease of Intestinal Tract. R. S. Morris and S. E. Dorst, Cincinnati.—p. 631.

Occurrence of Positive Wassermann Reactions in Spinal Fluid of Tuberculous and Other Nonsyphilitic Cases of Meningitis. K. Schaffle and M. Riesenberg, Asheville, N. C.—p. 632.

*Use of Ovarian Hormone: Amniotin. E. L. Sevringhaus and J. S. Evans, Madison, Wis.—p. 638.

*Curative and Possibly Specific Effect on Colds of Vaccines Consisting of Streptococci Prevalent During That Period. I. C. Walker, Boston.—p. 645.

Experiments in Intracranial Pressure in Man During Sleep and Under Certain Other Conditions. L. Stevenson, B. E. Christensen and S. B. Wortis, New York.—p. 663.

*Convulsive States. A. E. Bennett, Omaha.—p. 677.

*Spontaneous Intracranial Hemorrhage from Vascular Tumor. R. J. Reitzel and P. Brindley, Galveston, Texas.—p. 689.

*Cerebral Hemorrhage from Venous and Capillary Stasis: Five Cases. S. Cobb and J. P. Hubbard, Boston.—p. 693.

Management of Spastic Colon and Mucous Colopathy.—Barker feels that operations done for uncomplicated spastic colon and mucous colopathy are not only unjustifiable but distinctly reprehensible. The treatment of this functional malady should be predominantly medical rather than surgical.

Chronic Adhesive Pericarditis in Childhood.—Holt has made a careful study of pericarditis in fifty children with rheumatic heart disease. He concludes that rheumatic pericarditis appears in association with a severe infection and one which appears early in life. The prognosis is bad; more than one third of those children who recover from the acute attack are likely to die within three years; probably one half will die within five years; few will ever lead normal lives. Pericarditis is associated with valvular disease, usually with mitral stenosis, often with aortic insufficiency, and is usually merely one part of progressive heart disease. Marked cardiac enlargement is the rule; auricular fibrillation may be present. Ascites appears as part of a general breakdown, and when present presents a somewhat different picture from that described as Pick's disease. Some physical signs are likely to be pre ent except in those cases in which there is little enlargement of the heart and the general health is unimpaired. These signs may appear within a few months following an acute attack of pericarditis, but their absence does not necessarily exclude the presence of chronic adhesive pericarditis.

Sodium Ricinoleate in Allergic Disease of Intestinal Tract.—Capsules of sodium ricinoleate have been employed by Morris and Dorst in cases presenting symptoms suggesting an intoxication (the so-called intestinal autointoxication). Clinically, it has been observed, in patients with evidence of allergy of intestinal origin, that there is, as a rule, prompt relief of the feeling of distention and excessive gas formation, a lessening of fatigability, and a lessening or relief of pains in various parts

of the body (headache and neuralgic pains in muscles). The palpitation, tachycardia and nervousness so frequently associated with excessive gas are also relieved. Patients have commented on the fact that the stools have become less offensive after the ricinoleate has been taken. Some patients who have obtained marked subjective relief have complained of a recurrence of their symptoms when their supply of capsules became temporarily exhausted, with relief soon after resuming the medication. As many as six 5-grain (0.3 Gm.) capsules have been given daily, though the majority of patients have received only three daily. The drug appears to be entirely nontoxic in the doses employed.

Use of Ovarian Hormone: Amniotin.—The effect of amniotin, an ovarian hormone secured from the amniotic liquor of cattle, has been studied by Sevringhaus and Evans on twenty-five women with menopausal and menstrual disturbances. Its use has been of marked value in the relief of the vasomotor phenomena of the menopause and in promoting feminine development of one woman of infantile type.

Curative Effect on Colds of Vaccines.—Walker has found that a vaccine consisting of the varieties of streptococci that are most prevalent at certain periods seems to be beneficial in the relief or cure of acute colds that occur during that period. The same vaccine used as a preventive was not always successful, probably because in many instances a cold or asthmatic attack which followed its use seemed to be due to a variety of streptococcus not present in the vaccine. No attempt was made to prove specificity among the varieties of streptococci; nevertheless, in numerous instances specificity seemed to be quite evident.

Convulsive States.—In a clinical study made by Bennett of 200 convulsive states, 124 were essential epilepsies, and seventy-six other convulsive states with known etiology. A neuropathic heredity was present in 40 per cent of the epileptic patients. In 20 per cent, physical factors were noted that facilitated the seizures. In 15 per cent there was a history of infantile spasms. In 18 per cent there were definite abnormal mental reactions. Migraine occurred in 10 per cent in the family history. Of the 200 cases, 4.5 per cent followed head trauma. Jacksonian spasms occurred in 8 per cent; twelve of these cases were organic spasms and four were essential epilepsies. Decompressive operations have not improved the organic unilateral spasms in this series. The safest indications for neurosurgery are pressure signs. Five per cent of the entire series had hysterical convulsions. Four cases of narcolepsy with "lachschlag" or cataplexy were found in the series. Five per cent of the patients had convulsions beginning in the arteriosclerotic age with signs of cardiac insufficiency sufficient to be considered etiologic. Cerebrospinal syphilis was responsible for 3.5 per cent of the cases. Birth hemorrhage with associated cerebral palsy was present in 4 per cent, tumor and brain abscess in 6 per cent. Attention is called to the convulsions that are an early symptom of brain tumor, at times present long before pressure signs and of diagnostic value. Residual convulsions from cerebral inflammatory conditions occurred in 2.5 per cent of cases. There were 5 per cent of cases classified as toxic and mixed organic types with obscure etiology. Various methods of treatment are discussed, with emphasis on the proper management of essential epilepsy and with attention to the possible ways of preventing convulsive states.

Spontaneous Intracranial Hemorrhage from Vascular Tumor.—A case of fatal intracranial hemorrhage from a cerebral vascular telangiectasia in a young man is reported by Reitzel and Brindley, with necropsy observations and brief review and discussion of the literature. The authors feel that a vascular tumor should be borne in mind as a possible source of intracranial hemorrhage, when such hemorrhage occurs in a previously healthy young adult.

Cerebral Hemorrhage from Venous and Capillary Stasis.—Five cases are reported by Cobb and Hubbard which at necropsy showed hemorrhage into the parenchyma of the brain. In all of these the extravasation came from the veins and capillaries; there is no evidence that blood escaped from arteries. The mechanical factor common to all these cases is venous stasis; the common chemical factor is asphyxia. It is pointed out that widespread lesions can be caused by these two factors, the unit lesion being a petechial extravasation; but large lesions are formed by coalescence, and frank venous hemorrhage may be found.

American J. Ophthalmology, Chicago

12: 871-948 (Nov.) 1929

Peripheral Pigmentation of Cornea Associated with Lenticular Degeneration of Pseudosclerosis Type. T. B. Holloway and P. De Long, Philadelphia.—p. 871.
Pathologic Dimples (Dellen) of Cornea. A. Fuchs, Vienna, Austria.—p. 877.
Dendritic Keratitis. M. H. Post, St. Louis.—p. 884.
Ophthalmoplegic Migraine. R. P. Mackay, Chicago.—p. 889.
Modification of Tear Sac Operations. L. Hollós, Budapest, Hungary.—p. 896.
Principles Applied in Use of Cross Cylinders. E. Jackson, Denver.—p. 897.
Hemangioma of Orbit: Case with Operation. D. Shapiro, Passaic, N. J.—p. 901.
Optic Neuritis and Vitamin B. T. H. Shastid, Duluth, Minn.—p. 903.
Suggestion in Cross Cylinder Technic. R. W. Danielson, Denver.—p. 903.
Bad Refraction Versus Bad Psychology. T. H. Shastid, Duluth, Minn.—p. 904.

American Review of Tuberculosis, Baltimore

20: 637-832 (Nov.) 1929

*Multiple Intercostal Neurectomy for Pulmonary Tuberculosis. J. Alexander, Ann Arbor, Mich.—p. 637.
*Phrenico-Exeresis in Progressive Pulmonary Tuberculosis. E. Bridge and P. A. Bly, Rochester, N. Y.—p. 685.
Thoracoscopic Pneumolysis. J. R. Head, Chicago.—p. 692.
Simple Thoracoscope. J. R. Head, Chicago, and I. Rice, Aurora, Ill.—p. 704.
New Cannula for Direct Thoracoscopy. W. Mascher, Stockholm, Sweden.—p. 706.
Standardization in Artificial Pneumothorax. C. R. Howson, Los Angeles.—p. 711.
Technic of Artificial Pneumothorax. C. E. Atkinson, Banning, Calif.—p. 718.
Electrocardiographic Studies in Artificial Pneumothorax and Thoracoplasty. A. R. Anderson, Trudeau, N. Y.—p. 728.
Radiologic Signs Permitting Diagnosis of Paralysis of Diaphragm Coincident with Pneumothorax. A. Vadone, Buenos Aires, Argentina.—p. 736.
Pathogenic Mechanism of Kienboeck Phenomenon. C. B. Udaondo and A. Vadone, Buenos Aires, Argentina.—p. 741.
Point to Be Observed in Induction of Bilateral Artificial Pneumothorax. T. G. Heaton, Hamilton, Ont.—p. 764.
Bilateral Artificial Pneumothorax Complicated by Spontaneous Pneumothorax. M. Pollak, Duarte, Calif.—p. 767.
Artificial Pneumothorax Treatment in Pulmonary Tuberculosis. A. T. Cooper and W. E. Stallings, Denver.—p. 772.
Indications for Surgical Treatment of Pulmonary Tuberculosis. E. J. O'Brien, Detroit.—p. 787.
Surgical Treatment of Pulmonary Tuberculosis in United States Veterans' Bureau. P. B. Matz, Washington, D. C.—p. 809.

Multiple Intercostal Neurectomy for Pulmonary Tuberculosis.—On the basis of constant experimental observations and of the expected beneficial effect on human pulmonary tuberculosis, Alexander has performed unilateral multiple intercostal neurectomy preceded by phrenicectomy on six patients. The clinical results have been startlingly good in three; negative in one in whom lesions in the contralateral lung, intestine and larynx, where they were beyond reach of the operation, continued to progress; and death in one from cardiocirculatory decompensation to which the operation was a final contributing cause. In the last patient operation has been too recent to permit consideration of the result, although so far the clinical course has been highly satisfactory. Phrenicectomy should be performed one or more weeks in advance of intercostal neurectomy. Multiple intercostal neurectomy may be painlessly performed in one stage under local anesthesia. A longitudinal incision is made to the angles of the ribs and two or more centimeters of the second to eleventh intercostal nerves, inclusive, are resected at the costal angles distal to the posterior rami. Exceptionally, for limited lesions, fewer than ten nerves may be resected and, if temporary diaphragmatic and intercostal paralysis is clearly indicated, the nerves may be crushed rather than resected, or they may be injected with alcohol. As no rib is divided and as, therefore, the thoracic wall retains its protective rigidity, the patient is better sheltered from the two chief dangers of thoracoplasty, which are cardiocirculatory failure and rapid spread of the tuberculous lesions. Although intercostal neurectomy impairs the function of expectoration, extension of infection from stasis of secretions within the lung has not occurred in any of the author's cases. This

theoretical danger has not, however, been tested by sufficient clinical trial. Since the operative mortality from intercostal neurectomy may be expected to be far less than from thoracoplasty, the former may be used in certain of that rather large group of patients who are not suitable subjects for thoracoplasty and in whom pneumothorax has proved inadequate. Such patients include both those who are too ill for thoracoplasty and those who are not ill enough, in view of the risk, and yet for whom further aid is necessary in order to bring about arrest of the disease. Among patients too ill for thoracoplasty should be included those who are too old or too frail or whose cardiocirculatory reserve is inadequate, or in whom the chance of activation of lesions in the better lung seems too great. Noteworthy preoperative dyspnea or impairment of cardiocirculatory function contraindicates intercostal neurectomy as it would thoracoplasty. However, certain lesser degrees of impairment of cardiocirculatory or respiratory reserve that would make thoracoplasty unsafe may prove a reasonable operative risk for intercostal neurectomy. Alexander does not offer multiple intercostal neurectomy as a general substitute for thoracoplasty, but he does recommend this operation as an apparently effective substitute for thoracoplasty in those cases in which there is no large cavity demanding active compression but in which considerable reduction of respiratory mobility, together with some retraction of the thoracic wall, is desired.

Phrenico-Exeresis in Progressive Pulmonary Tuberculosis.—Phrenico-exeresis, or avulsion of the phrenic nerve, has been done by Bridge and Bly in the treatment of sixty cases of pulmonary tuberculosis which after a period of sanatorium care gave evidence that their disease was not being controlled. The sixty operations are divided into forty-one of election and nineteen of necessity. Of the elective operations thirty-one (fourteen unilateral and seventeen bilateral) resulted in improvement; eight (one unilateral and seven bilateral) in no improvement, while two patients (one treated unilaterally and one bilaterally), are dead. Of the nineteen operations of necessity, six (one unilateral and five bilateral) resulted in improvement; five (two unilateral and three bilateral) in no improvement, and eight patients (one treated unilaterally and seven bilaterally) are dead. Control of hemoptysis was the indication in ten and failure to improve under the sanatorium regimen in nine. The only patients in this group to show any improvement were those having hemoptysis. The other hemoptysis patients and all of those with poor prognosis are either unimproved or dead. Hemorrhage continued in three cases. In the other seven, the hemoptysis stopped immediately after the operation but recurred in three. Temporary nerve block was done five times, three for hemoptysis with success in two, and two for poor prognosis with improvement in one. It has been observed that after operation the patients raise more sputum for a short time but with less effort, their pulse rate is temporarily accelerated, and they have little or no discomfort except for slight and transient dyspnea.

Annals of Internal Medicine, Ann Arbor, Mich.

3: 403-520 (Nov.) 1929

*Intestinal Flatulence. J. L. Kantor and J. A. Marks, New York.—p. 403.
Lung Volume and Variations. J. C. Meakins and R. V. Christie, Montreal.—p. 423.
*Effect of Chronic Pulmonary Diseases on Volume and Composition of Blood. W. S. Lemon, Rochester, Minn.—p. 430.
*Treatment of Neurosyphilis. H. C. Solomon, Boston.—p. 447.
Syphilis of Lung. R. I. Rizer, Minneapolis.—p. 452.
Need for Emotional Data in Medical History. J. Favill, Chicago.—p. 462.
*Factors in Prognosis of High Blood Pressure. W. W. Herrick, New York.—p. 467.
Arterial Hypertension. G. C. Hale, London.—p. 478.
Radiation Therapy in Malignant Disease: Results to Be Expected. G. E. Pfahler, Philadelphia.—p. 483.
Can or Will Internist Practice Preventive Medicine? G. H. Bigelow, Boston.—p. 492.
*Statistical Study of Coincidence of Malignancy and Tuberculosis. C. H. Fortune, Ann Arbor.—p. 495.

Intestinal Flatulence.—Kantor and Marks believe that a theory of flatulence which would assume a sudden development of intestinal atony with rapid filling of the bowel by blood gases, chiefly nitrogen, would best account for many of the sudden baffling distentions encountered clinically. Such a theory would explain the flatulence of neurologic ileus; of toxemias associated with severe pneumonia, sepsis and typhoid; of various hysterical states; as well as that encountered postoperatively. The treatment of the more important clinical types of flatulence is discussed.

Effect of Chronic Pulmonary Diseases on Volume and Composition of Blood.—The clinical observations and the data obtained by Lemon demonstrate the degree of dysfunction that may take place in respiration before normal reserve is overcome and the collateral function of circulation is called on for compensatory assistance. In cases of chronic pulmonary disease, chronic emphysema and bronchitis, the response of the blood to arterial anoxemia was variable. Increases in the volume of blood and cells never simulated those found in polycythemia vera. When erythrocytosis was observed, it seemed to be due to changes in concentration, and in only one case was erythrocytosis present to a striking degree. There was an increase in the amount of hemoglobin in the individual erythrocyte. Correlation was not demonstrated between the vital capacity and the degree of arterial anoxemia, or the vital capacity and the response of the blood. Likewise, correlation could not be demonstrated between the arterial anoxemia and the response of the blood. The vital capacity was reduced in some instances to a significant degree. Cases of polycythemia vera, complicated by pulmonary disease and marked unsaturation with oxygen of the arterial blood, showed the usual excesses in the volume of the blood and cells that are observed in uncomplicated cases of polycythemia vera. In one case of Ayerza's disease there was demonstrated erythrocytosis of sufficient degree to produce significant absolute increases in the volume of the blood and of the cells.

Treatment of Neurosyphilis.—Solomon states that a conservative summary of the literature of the world concerning the results obtained with malarial treatment indicates that a thoroughly good clinical result is obtainable in about 30 per cent of the cases of paresis, while approximately another 30 per cent show a reasonable amount of improvement. Complete tabulation of the results obtained in the treatment of paretic cases by tryparsamide is not available, but what information is at hand would indicate that results are substantially the same as obtained by the use of malaria. The important factor to be stressed is that with both these methods it is possible to obtain complete serologic recovery in a considerable number of cases. Long-continued treatment is many times required to produce a serologic recovery. It is Soloman's usual custom when using tryparsamide to continue it indefinitely and usually without interruption until the desired result is at hand. Having sufficient optimism to believe that a serologic recovery is nearly always available, he perseveres, however long it may take, week after week, month after month, and year after year. The highest number of tryparsamide injections which he has given to any one patient is 183 in a period of little less than five years. There is rarely any evidence of cumulative effects or lack of ability of patients to handle the drug.

Factors in Prognosis of High Blood Pressure.—The salient points in the prognosis of high blood pressure are summarized by Herrick as follows: Unfavorable features are a family history of cardiovascular disorders, a relatively high diastolic pressure and, chiefly, evidence of degeneration in certain selected parts of the cardiovascular system. These evidences are of marked arteriosclerotic changes in the cerebral, retinal, coronary, renal or pancreatic arteries or in the aortic arch. Signs of myocardial weakness make for a bad prognosis. Among the functional tests, that revealing a lack of normal response to effort on the part of pulse rate and blood pressure, when existing with advanced structural changes in the circulatory system, is a not unimportant item in an unfavorable prognosis. This is especially true when both systolic and diastolic pressures are fixed at high levels and do not vary after effort. Of the favorable features, the following are mentioned: High blood pressure in the absence of demonstrable organic cardiovascular changes may not shorten life. This is especially true of cases in women appearing about the time of the menopause. High blood pressure with predominant changes in the larger peripheral vessels and with little change in the aorta or retinal vessels may be viewed with much less concern than cases presenting marked changes in the smaller arteries. This is particularly true of cases with normal diastolic pressures and of those without albuminuria and glycosuria. Cases in which there

remains the capacity to respond by a normal or exaggerated rise in blood pressure after effort carry a better prognosis than do those in which this capacity has been lost.

Coincidence of Malignant Conditions and Tuberculosis.—Statistical analysis made by Fortune of the necropsy records of the department of pathology of the University of Michigan, when properly controlled, shows that active tuberculosis occurs neither more nor less frequently combined with a malignant condition than it does combined with any other major disease capable of producing death. Healed tuberculosis occurs with approximately equal frequency in cancerous and noncancerous individuals.

Archives of Dermatol. & Syphilology, Chicago

20: 593-766 (Nov.) 1929

Erythema Elevatum Diutinum. F. D. Weidman and J. H. Besancon, Philadelphia.—p. 593.
Dermatology in Brazil. H. Fox, New York.—p. 621.
Dermatosis Papulosa Nigra. J. C. Michael and E. R. Seale, Houston, Texas.—p. 629.
*Dermatitis Venenata Due to Ephedrine: Case. M. Scheer, New York.—p. 641.
*Maduromycosis. K. L. Puestow, Madison, Wis.—p. 642.
*Bactericidal Properties of Human Sweat. B. Usher, Montreal, Canada.—p. 665.
Hypersensitiveness to Arsphenamine in Guinea-Pigs: I. Experiments in Prevention and Desensitization. M. B. Sulzberger, New York.—p. 669.
Toxic Reactions Produced by Application of Trinitrophenol (Picric Acid). C. C. Dennie, W. L. McBride and P. E. Davis, Kansas City, Mo.—p. 698.
*Sugar Metabolism in Acne Vulgaris. A. Strickler and M. A. Saylor, Philadelphia.—p. 705.

Dermatitis Venenata Due to Ephedrine.—Following the use of ephedrine in oil as a nasal spray, Scheer's patient developed an acute dermatitis. The eruption subsided in from three to four days with the use of wet dressings of 2 per cent aluminum acetate solution. Three months later he had another attack which also followed immediately on the use of the ephedrine spray.

Maduromycosis.—A case of maduromycosis with black grains due to *Aspergillus nidulans* producing multiple subcutaneous lesions about the head and on one forearm is reported by Puestow as occurring in a 19 year old white girl, a native of New York, in whom a cure has been effected by complete surgical excision of the lesions.

Bactericidal Properties of Human Sweat.—Experiments made by Usher show that human sweat is not bactericidal to *Staphylococcus pyogenes-aureus* or to the cryptococcus.

Sugar Metabolism in Acne Vulgaris.—In thirty-nine patients with acne who were studied by Strickler and Saylor, the first determination of the blood sugar showed twenty-eight normal results, two instances of hyperglycemia and nine instances of hypoglycemia. The highest concentration of blood sugar in the first determinations of the blood sugar was 140 mg. Eighty-five determinations of the blood sugar were made, of which sixty-four, or 75 per cent, showed normal observations on the blood sugar; thirteen, or 15 per cent, showed a hypoglycemia, and ten, or approximately 10 per cent, a hyperglycemia.

Archives of Otolaryngology, Chicago

10: 447-574 (Nov.) 1929

*Relation of Aorta to Esophagoscopy. J. S. Moyer, Philadelphia.—p. 447.
Osteogenesis of Human Periotic Capsule. T. H. Bast, Madison, Wis.—p. 459.
*Effect of Audible and Subaudible Vibrations on Acuity of Hearing. V. O. Knudsen and I. H. Jones, Los Angeles.—p. 472.
Stenosis of Nasopharynx: Eighteen Cases. F. A. Figi, Rochester, Minn.—p. 480.
Operative Treatment of Cleft Palate: New Method. J. E. MacKenty, New York.—p. 491.
Typhoid Neuritis of Recurrent Nerves with Consequent Paralysis of Laryngeal Dilators: Case. J. N. Roy, Montreal.—p. 513.
Chart for Repeated Functional Hearing Tests. F. B. Blackmar, Columbus, Ga.—p. 516.
Portable Nose, Throat and Ear Treatment Case. R. M. Lukens, Philadelphia.—p. 518.
Electrical Shocks from Diagnostic Instruments. D. MacFarlan, Philadelphia.—p. 520.

Relation of Aorta to Esophagoscopy.—Moyer finds that the Jackson progressive high-low positions tend to protect the aorta in esophagoscopy. Aneurysm of the aorta is not an absolute contraindication to esophagoscopy for diagnosis. Without special roentgen technic, a pathologic condition in the lower part of the thorax of interest to the endoscopist may be overlooked in the ordinary anteroposterior film made primarily to determine the condition of the lungs. In studying the esophagus, in addition to the usual oblique and lateral films, it is desirable to have an anteroposterior roentgenogram of the chest in which, so far as is possible, the detail of structures within the cardiac shadow is brought out. An elongated, tortuous, sclerotic aortic arch, in the absence of aneurysmal dilatation, may produce esophageal compression with symptoms. When a foreign body lodges in the esophagus at the site of a stenosis due to aortic pressure, it should be cautiously dealt with by endoscopic means.

Effect of Audible and Subaudible Vibrations on Acuity of Hearing.—Knudsen and Jones summarize their observations by stating that neither the acuity of the hearing for tones nor the acuity of the hearing for speech receives any benefit from subaudible vibrations.

California & Western Medicine, San Francisco

31: 305-376 (Nov.) 1929

*Relationship Between Fibroids of Uterus and Thyroid Gland. F. H. Falls, Chicago.—p. 305.
Meningococcus Infection: Treatment. E. B. Shaw and H. E. Thelander, San Francisco.—p. 309.
*Review of Over Three Hundred Cases of Cancer of Rectum. W. H. Kiger, Los Angeles.—p. 313.
Epidemic Cerebrospinal Meningitis. B. E. Bonar, Salt Lake City.—p. 316.
Fracture of Pelvis. M. C. Harding, San Diego, Calif.—p. 320.
Mental Hygiene Problems, Psychiatry and General Practitioner. G. Myers, Los Angeles.—p. 323.
Food Poisoning. J. C. Geiger, San Francisco.—p. 328.
Intussusception: Roentgenographic Diagnosis. K. S. Davis and C. Parker, Los Angeles.—p. 330.
*Vaccine Therapy in Infectious Bronchitis and Asthma. W. C. Voorsanger and F. Firestone, San Francisco.—p. 336.
Lure of Medical History: William Charles Wells. W. Dock, San Francisco.—p. 340.
Extensive Impairments from Minor Ear Lesions. E. R. Lewis, Los Angeles.—p. 341.
Epinephrine as Clinical Test of Infection and Gangrene of Scalp: Case. M. T. Burrows, Pasadena.—p. 342.
Lighted Kelly Anoscope. M. S. Woolf, San Francisco.—p. 344.

Relationship Between Fibroids of Uterus and Thyroid Gland.—In a thousand women with fibroids of the uterus, Falls says that there was no evidence that goiter was caused by the fibroids. Fibroids complicated by pathologic conditions and degenerative changes of the adnexa were not associated with a higher incidence of thyroid disease than other cases. The basal metabolic rate in a series of thirty-five cases, while higher than normal in the majority of cases, was not sufficiently high to be of especial significance. In a series of 100 thyrotoxic patients there was no evidence of an abnormal incidence of fibroids as judged by the symptoms, vaginal condition, and history of operation for fibroids. Only 2 per cent of these cases showed demonstrable fibroids. Fibroids and hyperthyroidism may occur in the same individual. The treatment of the thyroid should always precede that of the fibroid unless the latter is an emergency, such as twisted, infected, necrotic or severely bleeding fibroid, and if emergency operation is necessary, epinephrine as a stimulant for shock should be avoided. Rest, compound solution of iodine, and lobectomy may be necessary before attempting the necessary gynecologic operation. Palliative management of the fibroid by radium, roentgen ray, ergot and solution of pituitary, with blood transfusion in suitable cases, often gives good results while the thyrotoxicosis is being brought under control. All patients with fibroids giving suggestive history or symptoms of thyroid disease should have a careful examination, including the basal metabolic rate, to determine the presence and degree of thyrotoxicosis.

Cancer of Rectum.—Kiger stresses the importance of a careful and thorough examination of the rectum in all cases, regardless of age, when blood in the stool or an increasing constipation with changes in the character of the stool occurs. If routine examination is made, many cases of adenoma which must be considered as potential cancers will be found by the examining physician before the malignant process has started, the best time in which to cure a clinically precancerous lesion.

Vaccine Therapy in Infectious Bronchitis and Asthma.—In a study of 481 cases of chronic cough of more than six

weeks' duration, Voorsanger and Firestone were able to segregate sixty-six cases of infectious bronchitis and asthma in which vaccine therapy had been given. In the authors' sixty-six patients receiving vaccine therapy they classify 63.6 per cent as well and improved, and 36.4 per cent as unimproved. A series of twenty-two cases treated with stock respiratory vaccine give parallel results, so that they do not claim specificity of autogenous vaccines. Cultural studies to date do not inform one which cases will do well; the duration of the illness, age of onset, and history of repeated colds, influenza, pneumonia and whooping cough are potent influences. The authors believe that two thirds of the cases of infectious bronchitis and asthma are amenable to vaccine therapy and that failure is the result of structural changes in the lung parenchyma or an associated myocardial lesion.

Canadian M. Assn. Journal, Montreal

21: 491-644 (Nov.) 1929

Lymph Stasis, Precursor of Cancer. W. S. Handley, London.—p. 491.
Classification of Operative Risks in Respect of Operation of Thoracoplasty for Pulmonary Tuberculosis: Results of That Operation. E. Archibald, Montreal.—p. 502.
Important Factors in Management of Hyperthyroidism. G. S. Fahrni, Winnipeg.—p. 511.
Vaccination and Encephalitis. R. D. Defries and N. E. McKinnon, Toronto.—p. 516.
Treatment of Diabetic Coma in Children. G. L. Boyd, Toronto.—p. 520.
Management of Diabetic. I. M. Rabinowitch, Montreal.—p. 524.
Fundus Manifestations in Metabolic Diseases. W. R. Campbell, Toronto.—p. 530.
*Treatment of Cerebrospinal Syphilis at Verdun Protestant Hospital. E. C. Menzies, Verdun, Que.—p. 534.
Treatment of Pneumonia from Point of View of Circulation. J. Brodie, Winnipeg.—p. 541.
Standardization of Roentgenography. P. M. Andrus, London, Ont.—p. 550.
Poliomyelitis in Manitoba in 1928. O. J. Day, Winnipeg.—p. 554.
Visualization of Cystocele by Cystogram. H. G. Pretty, Montreal.—p. 558.
*Several Cases of Leukosarcoma and Myelosarcoma. T. F. Nicholson, Toronto.—p. 563.
Fractures Pertaining to Motor Accident. G. A. Ramsay, London, Ont.—p. 567.
Traumatic Asphyxia. H. M. Young, Iroquois Falls, Ont.—p. 570.
Subacute Bacterial Endocarditis: Case. J. P. Davies, Huntsville, Ont.—p. 573.
Successful Closure of Spinal Meningocele Followed by Severe Reactions. S. A. Wallace, Kamloops, B. C.—p. 575.
Colloid Carcinoma of Peritoneum: Case. F. W. Hart, Indian Head, Sask.—p. 576.

Treatment of Cerebrospinal Syphilis at Verdun Protestant Hospital.—Menzies states that before the introduction of tryparsamide in 1923 the condition of practically all patients admitted to the Verdun hospital suffering from cerebrospinal syphilis progressed to a fatal termination. Of forty-one patients treated with tryparsamide and mercury from May, 1923, to May, 1925, nine are still going on satisfactorily outside. Of forty patients treated by means of malaria followed by tryparsamide and bismuth, sixteen are still carrying on outside. Malaria followed by tryparsamide is a much more adequate treatment than tryparsamide alone, for three reasons: (*a*) It is much quicker, and in some cases at least it forestalls hopeless degeneration; (*b*) the danger of optic atrophy is much less; (*c*) a much higher percentage of patients secured satisfactory remissions under malaria than under tryparsamide alone. The use of tryparsamide alone, to the exclusion of malaria, is to be deplored, but it has distinct value when used subsequent to fever therapy. It may possibly be of value when the patient's physical condition is clearly such that malarial inoculation would be fatal. Induced malaria is easy to stop and is not infective. In Menzies' series the improvement among women was, if anything, better than that among men. In view of the poor results of other forms of treatment he feels that one cannot lightly undertake the responsibility of refusing to inoculate a patient with malaria, even on the grounds of a poor physical condition. He has treated a small series of cases before pronounced mental symptoms set in. The results in this group have been much more striking than those obtained among the asylum population. These results have been so marked that no patient suffering from any form of neurosyphilis should be allowed to progress to an asylum before malaria is tried. The success in typical cases of postsyphilis tabes is not so gratifying as it is in the other types, but it is greater, especially in relieving pain, than any other forms of treatment. Nonspecific therapy succeeds not so much because of a direct spirocheticidal action but because it enlists and stimulates the natural resistive forces of the patient, in other words, the same means whereby any infection is overcome. The value of good nursing, good food, fresh air, and sunlight must not be lost sight of in this connection.

Leukosarcoma and Myelosarcoma.—The gross and microscopic observations in three cases of leukosarcoma and one of myelosarcoma were studied by Nicholson and he concludes that the disease process (localized lymphoid or myeloid tumors with leukemic blood) should be considered as a condition separate from the simple leukemias and of the nature of true tumors.

Endocrinology, Los Angeles

13: 311-426 (July-Aug.) 1929

Endocrine Regulation of Reproduction. O. Riddle, Cold Spring Harbor, N. Y.—p. 311.
Nasal Spray Method of Administering Hormones of Ovary and Pituitary Gland. J. P. Pratt and M. Smeltzer, Detroit.—p. 320.
Endocrine Glands: VIII. Differential Diagnosis of Endocrine Disorders. A. W. Rowe, Boston.—p. 327.
Geographic Factors in Calcium Metabolism. H. Wheelon, Seattle.—p. 363.
Effects of Extracts of Testis in Correcting Castrated Condition in Fowl and Mammal. C. R. Moore, T. F. Gallagher and F. C. Koch, Chicago.—p. 367.
Laurence-Biedl Syndrome: Two Cases in One Family; Results of Treatment. H. G. Beck, Baltimore.—p. 375.
Summary of Findings in 1,100 Glucose Tolerance Estimations. H. J. John, Cleveland.—p. 388.
Abortive Action of Liquor Folliculi. G. Pighini and A. Colonna, Regio Emilia, Italy.—p. 393.
Assay of Follicular Hormone by Vaginal Administration. H. H. Powers, J. R. Varley and J. A. Morrell, New Brunswick, N. J.—p. 395.

Illinois M. Journal, Oak Park

56: 309-384 (Nov.) 1929

Diagnostic Relations Between Gallbladder and Heart. S. R. Roberts, Atlanta, Ga.—p. 317.
Periodic Health Examinations. M. L. Harris.—p. 321.
Coronary Disease. R. W. Scott, Cleveland.—p. 326.
Surgical Management of Lesions Peculiar to Diabetes Mellitus. G. L. Apfelbach, Chicago.—p. 332.
Control of Diphtheria. A. Ailes, La Salle.—p. 337.
Laboratory in Relation to Preventive Medicine. D. J. Davis, Chicago.—p. 340.
Diagnostic Problems in Tuberculosis. G. T. Palmer, Springfield.—p. 346.
Cancer in Eye, Ear, Nose and Throat Practice. G. W. Boot, Evanston.—p. 349.
Modification of Present Radical Operation for Deflection of Nasal Septum. C. F. Burkhardt, Effingham.—p. 353.
Ketogenic Diet in Epilepsy. A. M. Saunders, Chicago.—p. 355.
So-Called Traumatic Neurosis. C. F. Read, Chicago.—p. 359.
How We Resist Disease. J. W. Hermetet, Macomb.—p. 363.
Ovarian Insufficiency and Ovarian Therapy. J. H. Hutton, Chicago.—p. 371.
Compound Comminuted Fracture: Case. F. C. Schurmeier, Elgin.—p. 375.
Use of Forceps. J. L. Baer, Chicago.—p. 376.

Iowa State M. Soc. Journal, Des Moines

19: 477-512 (Nov.) 1929

Treatment of Epidemic Meningitis. P. F. Stookey, B. L. Elliott and F. R. Teachenor, Kansas City, Mo.—p. 477.
Undulant (Malta) Fever in Iowa. A. V. Hardy, Iowa City.—p. 483.
Strabismus and Amblyopia. H. J. McCoy, Des Moines.—p. 485.
Congenital Cataracts and Amblyopia. W. F. Boiler, Iowa City.—p. 491.
Traumatic Tympanic Rupture. C. E. Broderick, Cherokee.—p. 495.
Fibroma of Kidney: Case. G. H. Steinle, Burlington.—p. 497.

Journal of Nerv. & Ment. Disease, New York

70: 465-576 (Nov.) 1929

*Cerebral and Spinal Complications Occurring During Pregnancy and Puerperium. B. J. Alpers and H. D. Palmer, Philadelphia.—p. 465.
Hypothalamus of Opossum (Didelphis Virginiana). F. J. Warner, Baltimore.—p. 485.
Dilatation and Engorgement of Cortical Veins Simulating Tumor of Brain. A. Gordon, Philadelphia.—p. 495.
Somatic Basis of Neurosis. P. Schilder, Vienna, Austria.—p. 502.
Psychoses in Criminals. B. Karpman, Washington, D. C.—p. 520.

Cerebral and Spinal Complications Occurring During Pregnancy and Puerperium.—Alpers and Palmer report two cases of epidemic (lethargic) encephalitis complicating pregnancy and review thirty-five cases recorded in the literature. One of their patients had epidemic encephalitis, completely recovered, and three years later became pregnant. In the latter months of pregnancy, symptoms of encephalitis recurred. Delivery was followed immediately by the appearance of the parkinsonian syndrome. The second case was one of encepha-

litis occurring in the third month of pregnancy with complete recovery. There was reappearance of the symptoms in a succeeding pregnancy, followed by a typical parkinsonian syndrome. Of thirty-five cases occurring in pregnancy, nineteen proved fatal (54.28 per cent), while sixteen patients recovered (45.72 per cent). Two cases occurring in the puerperium were fatal. In the thirty-seven cases included in this report there were twenty-one deaths. In twelve of these there was no intervention in the course of pregnancy and of these twelve patients, four were delivered spontaneously while in eight the infant died in utero. In two of the cases, the manner of delivery was not stated; in one, the encephalitis occurred in the seventh month and in the other in the eighth. Two deliveries were induced, one of which required the application of forceps. Three deliveries were by cesarean section. In sixteen patients who recovered, eleven were without intervention in the course of the pregnancy; two deliveries were by cesarean section; three were induced, one of which required the use of forceps. In two the manner of delivery was not ascertained. In the twenty-one fatal cases, the month of gestation was stated in eighteen. The average time during gestation at which the symptoms appeared was 6.85 months. In sixteen of the patients who recovered, fourteen included accounts of the month of gestation in which the symptoms appeared. The average onset in these was at 6.25 months. From this it may be concluded that there is little if any relation between the month of gestation in which symptoms appeared and mortality.

Kansas M. Soc. Journal, Topeka

30: 361-400 (Nov.) 1929

Physical Diagnosis. L. Clendening, Kansas City, Mo.—p. 361.
Low Blood Sugar in Hypothyroid Conditions. J. W. Campbell, Halstead.—p. 365.
Lump in Breast. W. P. Callahan, Wichita.—p. 368.
Primary Bronchogenic Carcinoma. S. H. Snider and L. E. Wood, Kansas City, Mo.—p. 374.

Maine M. Assn. Journal, Portland

20: 155-172 (Oct.) 1929

Surgical Aspects of Diabetes. L. S. McKittrick, Boston.—p. 155.
Medical Aspects of Surgical Diabetes. E. R. Blaisdell, Portland.—p. 160.
Unique Foreign Body in Urethra. C. H. Jameson, Rockland.—p. 165.

Medical J. & Record, New York

130: 481-548 (Nov. 6) 1929

Ovarian Dysfunction and Uterine Cancer as Causes of Menopausal Bleeding. E. Novak, Baltimore.—p. 481.
Effects of Cigaret Smoking. S. A. Knopf, New York.—p. 485.
Cooperating with Nature to Restore Function. C. E. Haines, New Rochelle, N. Y.—p. 489.
Control of Arthritis Deformans and Rheumatism. L. Sharp, Intercourse, Pa.—p. 490.
Serum Calcium and Inorganic Phosphorus Following Splenectomy. R. D'Aunoy and A. Zoeller, New Orleans.—p. 495.
*Undescribed Organism Isolated from Acute Rhinitis. J. A. F. Pfeiffer, Baltimore.—p. 497.
Coccidioidal Granuloma: Seven Cases. H. P. Jacobson, Los Angeles.—p. 498.
Intravenous Therapy. W. F. Dutton, Amarillo, Texas.—p. 500.
History of Asthma. G. B. Lake, Chicago.—p. 503.
Essential Nature of Asthma. B. Haseltine, Chicago.—p. 504.
Internist's Rôle in Treatment of Asthma. A. La Forge, Chicago.—p. 510.
Rhinologist's Rôle in Treatment of Asthma. D. W. Myers, Ann Arbor, Mich.—p. 517.
Toxicosis as Basic Factor in Asthma. A. J. D. Cameron, Northampton, England.—p. 525.

Undescribed Organism Isolated from Acute Rhinitis.—Pfeiffer describes a micrococcus which has been repeatedly isolated and studied during the past five years, in connection with investigations regarding the significance of bacteria in the etiology of acute rhinitis. This organism is differentiated from other cocci commonly found in the nasopharynx by cultural methods and serologic tests. The inoculation of freshly isolated strains of this organism into the nasal cavities of suitable subjects produced the typical clinical symptoms of acute rhinitis. In these cases a coccus biologically identical with the cocci injected was recovered from the discharges, as long as symptoms persisted and often for some time thereafter. Serologic tests were carried out on the strains from patients, which corresponded in every instance with the strains inoculated. Complement fixation has been positive in high dilution with the serum of all human beings tested. In experimental animals, specific antibodies are produced.

130: 549-608 (Nov. 20) 1929

Wanted—A Marco Polo in Medicine. E. T. Wilkes, New York.—p. 549.
Mouth Infection. O. T. Osborne, New Haven, Conn.—p. 551.
Gastric Carcinoma. C. W. Heald, Battle Creek, Mich.—p. 555.
Treatment of Various Forms of Arthritis. W. B. Snow, New York.—p. 559.
Unrotated Ascending Colon and Cecum with Appendicular Abscess. S. Weiss, New York.—p. 563.
Chemistry of Arsenicals: Methylated and Nonmethylated. R. L. Larsen, Evanston, Ill.—p. 565.
*Fatal Bacteremia Due to Escherichia Pseudodysenteriae (Kruse). R. A. Kilduffe and S. L. Salasin, Atlantic City, N. J.—p. 567.
Results of Use of Radium in Treatment of Chronic Metritis. G. Lacapère, Paris.—p. 569.
Urinalysis in Relation to Toxic Basis of Asthma. C. Mitchell, Chicago.—p. 571.
Production of Bronchial Spasm. W. E. Dixon, Cambridge, England.—p. 576.
Asthma a Toxemia. J. Adam, Glasgow, Scotland.—p. 583.
Toxicosis as Basic Factor in Asthma. A. J. D. Cameron, Northampton, England.—p. 585.

Fatal Bacteremia Due to Escherichia Pseudodysenteriae Kruse.—Kilduffe and Salasin report the second case of fatal bacteremia due to *Escherichia pseudodysenteriae* Kruse and suggest that this type of infection may be occurring without detection, in the absence of bacteriologic study, and that the organism is, perhaps, of more pathogenic importance than has hitherto been thought to be the case. The patient's illness began as a digestive disturbance characterized by "cramps in the stomach," belching, and considerable vomiting. There was some rigidity of the neck. The breath was foul. The patient died after being ill about a month. The organism isolated from the blood stream twice during the course of the disease, and at postmortem from the heart blood, spleen, kidney and liver (all in pure culture), and from the contents of the intestinal canal was identified as *Escherichia pseudodysenteriae* Kruse.

New England J. of Medicine, Boston

201: 967-1020 (Nov. 14) 1929

*Diabetic Coma, Then and Now. R. Fitz, Boston.—p. 967.
*Diagnosis of Nephrosis. R. W. Buck, Boston.—p. 973.
Codman's Registration of Bone Sarcoma and Bearing on Study of Malignancy Elsewhere. J. C. Bloodgood, Baltimore.—p. 979.
Two-Stage Pedicled Graft to Replace Unsatisfactory Scar. F. J. Cotton, Boston and R. Berg, New York.—p. 981.
Nonunion of Fractures of Long Bones. F. J. Cotton, Boston.—p. 982.
Raynaud's Disease and Trauma of Occupation. F. J. Cotton, Boston, and R. Berg, New York.—p. 985.
Osteomyelitis: Treatment. F. J. Cotton, Boston.—p. 986.
Fender Fracture of Tibia at Knee. F. J. Cotton, Boston, and R. Berg, New York.—p. 989.
Medical Illustrations of Antiquity to Medical Audiocinema of Present. P. E. Truesdale, Fall River, Mass.—p. 996.

Diabetic Coma, Then and Now.—Fitz says that diabetic coma should now be considered as a diabetic accident, preventable in most cases, having a good rather than a bad prognosis. It is no longer the natural culmination of the disease and is never a justifiable catastrophe. The successful treatment of diabetic coma depends on its early recognition. It must be attacked vigorously. It can be prevented in many instances by simple common sense measures. It can be treated successfully in the majority of cases by any well trained physician. The treatment of coma consists essentially in the appropriate use of insulin, good nursing care and fluids. The family physician is under a definite obligation to his diabetic patients. He is the first to be called when any emergency arises. He has a great opportunity to establish the diagnosis of diabetic coma in its early stages and to prevent its development. Coma causes far too many diabetic deaths each year. The present high death rate can be lowered if only physicians throughout the country will admit the practical importance of the problem and learn how to recognize and treat diabetic acidosis before it becomes dangerous.

Diagnosis of Nephrosis.—Buck asserts that, confronted with a patient who presents the symptoms of pallor, fatigability, oliguria, edema and albuminuria, the diagnosis of lipoid nephrosis should suggest itself as a probability. If an examination of the urinary sediment shows the presence of doubly refractile droplets, the diagnosis is assured. Probably there is a diminished phenolsulphonphthalein excretion, an abnormal response to the dilution and concentration test of Volhard, with a tendency to a fixation of gravity at a high level; but, unless there is a coincident nephritis, there will be no evidence of nitrogen

retention. Probably the blood cholesterol is considerably increased over the normal figure of from 150 to 200 mg. per hundred cubic centimeters. If the protein content of the blood plasma is studied, it will probably be found that this is low and that the albumin-globulin ratio is reduced. The basal metabolic rate may be low, partly owing to the fact that it is impossible accurately to calculate the normal rate if the body weight is increased by edema, but perhaps partly due to the nature of the disease itself. The blood sedimentation rate may be considerably increased. It is quite possible that in addition to these conditions there may also be a definite nephritis present, in which case an elevated blood pressure, nitrogen retention and changes in the retina may be found. In the latter case, one should expect to find some evidence of cardiac enlargement. The purer the type of lipoid nephrosis, the fewer complicating factors will be discovered. In the treatment of lipoid nephrosis, the maintenance of the nutrition is probably more important than any rigid restriction of the diet. Prolonged rest in bed serves the purpose of conserving vitality and affording opportunity to the physician for careful study of the patient. The salt intake is restricted but not to an onerous degree. Patients should be treated symptomatically.

Ohio State M. Journal, Columbus

25: 865-936 (Nov. 1) 1929

Importance of Psychology in Everyday Medicine. E. J. G. Beardsley, Philadelphia.—p. 869.
Diagnosis and Etiology of Apoplexy. S. J. Webster, Cleveland.—p. 871.
Fatal Type of Hemorrhage Following Throat Infections. J. A. Lukens, Toledo.—p. 879.
Foreign Bodies in Air Passages of Children. J. E. McClelland, Cleveland.—p. 882.
Prevention of Cancer. B. L. Good, Van Wert.—p. 885.

Public Health Reports, Washington, D. C.

44: 2697-2768 (Nov. 8) 1929

Fatty Degeneration of Liver and Kidneys in Dog Apparently Associated with Diet. W. H. Sebrell.—p. 2697.
Further Observations on Epidemiology of Narcotic Drug Addiction. W. L. Treadway.—p. 2702.
Negro Infant Mortality. A. L. Stoughton.—p. 2705.

Radiology, St. Paul

13: 377-468 (Nov.) 1929

Craniostenosis. A. Schüller, Vienna, Austria.—p. 377.
Roentgen Ray in Diagnosis of Mucous Colitis. F. M. Hodges, Richmond, Va.—p. 383.
Present Status of Roentgen Therapy in Breast Malignancy. A. Soiland, Los Angeles.—p. 388.
Five Year End-Results in Carcinoma of Breast. H. Schmitz, Chicago.—p. 392.
Influence of Phenolphthalein on Intestinal Movements. G. H. Caldwell and A. W. Crane, Kalamazoo, Mich.—p. 403.
Progress of Roentgenology in Army. H. C. Pillsbury, Fort Sam Houston, Texas.—p. 413.
Significance of Faint Shadow in Oral Cholecystography. C. S. Oakman, Muncie, Ind.—p. 417.
Question of Preoperative and Postoperative Roentgen Treatment of Breast Carcinoma. M. Kahn, Baltimore.—p. 422.
Roentgenologic Records. C. G. Sutherland, Rochester, Minn.—p. 427.
Effect of Roentgen Radiation on Chemical Compounds: (A) Tyrosine and Cystine; (B) Cholesterol; (C) Acetylene and Propane. W. Stenstrom, Minneapolis.—p. 437.
Treatment of Malignant Tumors of Rectum by Radium and Roentgen Rays. H. H. Bowing, R. E. Fricke and N. D. Smith, Rochester, Minn.—p. 443.
Roentgenographic Demonstration of Sternal Injury: Case. R. C. Pendergrass, Americus, Ga.—p. 451.
Benign Tumor of Stomach: Case. L. H. Levy, New York.—p. 454.

South Carolina M. Assn. Journal, Greenville

25: 533-552 (Oct.) 1929

Some Uses of Magnesium Sulphate in Surgical Practice. J. R. Young, Anderson.—p. 535.
Diagnosis and Management of Heart Wounds. R. G. Doughty, Columbia.—p. 539.
Toxemia of Pregnancy. H. W. deSaussure, Charleston.—p. 544.
Publicity Bureau for State Health Department. G. T. Tyler, Jr., Greenville.—p. 547.

United States Vet. Bur. M. Bull., Washington, D. C.

5: 829-924 (Nov.) 1929

Outcome of Hospital Treatment of Ex-Service Patients with Nervous and Mental Disease in United States Veterans' Bureau. P. B. Matz.—p. 829.
Similarities Involved in Production of Catatonia of Dementia Praecox and Parkinsonian Syndrome of Encephalitis. J. Epstein and J. J. L. Young.—p. 843.
Influence of Pneumothorax on Electrocardiographic Findings. S. T. Taylor.—p. 850.
Physical Measures in Treatment of Certain Ear, Nose and Throat Conditions. C. R. Brooke.—p. 853.
Cardiac Arrhythmias. R. C. Cook.—p. 859.
Inheritance of Mental Disease. L. W. Day.—p. 869.
*Frequency of Syphilis as Complication in Pulmonary Tuberculosis. G. E. Barksdale.—p. 876.
Reception Service in Tuberculosis Hospital. J. J. Klein.—p. 878.
Fire Protection in United States Veterans' Hospitals. H. C. Watts.—p. 881.
*Gregersen Test. R. S. Alvarez and T. H. T. Wight.—p. 888.
*Bronchoscopic Removal of Foreign Body (Rubber Tube) from Lung. J. D. Cook and J. A. Thurston.—p. 891.
Fractures of Lower Jaw. W. D. Lanier, Jr.—p. 893.
Complete Transposition of Viscera: Case. M. K. Amdur.—p. 896.
Cervical Rib with Excision. G. E. Pfeiffer.—p. 898.
Pernicious Anemia. D. M. McRae.—p. 902.

Frequency of Syphilis as Complication in Pulmonary Tuberculosis.—Among 9,608 patients admitted to a tuberculosis hospital in five years, Barksdale found that 280 gave a strongly positive reaction to the Wassermann, Kahn or Meinecke tests. Many of the patients who gave positive reactions to one or all three tests presented no symptoms. Some were amazed and dismayed when informed that they were infected, while others had been treated, in this and other hospitals and by private physicians before coming to the hospital, for syphilis. Of the 9,045 white patients admitted, it was found that 209 gave a positive reaction to the Wassermann, the Kahn or the Meinecke tests, or a percentage of 2.2. Of the 563 negroes admitted, seventy-one gave positive reactions, a percentage of 12.6. No data were kept of other races because of the few admissions. There have been 182 necropsies done at this hospital over a period of about two years. It was found that those who died of tuberculosis and had syphilis as a complication, as established by the Wassermann and other tests and the observations at necropsy, were three whites and three negroes, six in all, or a percentage of 3.2, which is a close approximation to the number showing positive tests for syphilis from the laboratory, as the 9,608 patients admitted showed positive reactions in 2.9 per cent.

Gregersen Test.—The Gregersen test is regarded by Alvarez and Wight as being the most rapid and satisfactory method for determining the presence of occult blood in the stool and in other specimens. It will give a positive reaction with blood up through a dilution of 1:200,000. It does not react with iron salts. The ordinary diet of patients does not affect this reaction in the slightest. The authors have modified the original technic of the test slightly. They thoroughly mix the powders in bulk and keep them in a dark stoppered bottle. Then a pinch of the powder is picked up on the end of a knife blade, approximately 0.225 Gm. in weight. This is dissolved in 5 cc. of 50 per cent acetic acid. The solution will not keep for more than twenty minutes, so it must be used at once. The authors use a white porcelain painter's palette which has a dozen or more fairly deep depressions. This gives a far better background for color determination than a glass slide and is easily cleaned. Into each depression a few drops of water are placed. A small piece of the specimen is rubbed in with a toothpick. With a pipet two or three drops of the freshly dissolved solution of barium peroxide and benzidine are dropped into each depression that is to be tested. With stop watch in hand the readings are made according to the Gregersen scale.

Bronchoscopic Removal of Foreign Body from Lung.—Cook and Thurston relate the case of a man who had his esophagus dilated by a physician, who used a piece of rubber tube over the tip of the dilator. During this treatment the patient developed a severe cough, and it was necessary to withdraw the instrument. He was told that he "had a piece of rubber tube in his stomach, which would later pass." Later the patient developed pneumonia, but with complete recovery. The patient's chief complaint on admission was pain and retention of food in stomach; stricture of the esophagus, and weakness. Physical examination was negative. Roentgen examination revealed a piece of rubber tubing on a level with the ninth and tenth dorsal vertebrae in the left lung. With the aid of the bronchoscope an ordinary piece of red and tan catheter tubing, 1¾ inches long and one-fourth inch in diameter, was removed.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

4: 247-346 (Oct.) 1929

*Leukocyte Count in Rheumatic Heart Disease in Childhood. C. B. Perry.—p. 247.
Congenital Valvular Obstruction of Urethra. O. Addison.—p. 255.
*Acute Sensitization in Infant to Cow's Milk Protein. H. T. Ashby.—p. 264.
*Pneumonia in Childhood: V. Empyema. C. McNeil, A. R. MacGregor and W. A. Alexander.—p. 270.
*Bacteriology of Bronchopneumonia of Children. W. G. Liston.—p. 283.
*Acid-Base Equilibrium of Blood in Acute Rheumatism. L. G. Parsons and S. H. Edgar.—p. 291.
Carbon Dioxide Dissociation Curve of Blood in Infancy and Childhood. N. Morris and S. Graham.—p. 299.
Cardiac Clinic and Hospital: Value in Control of Rheumatic Infection. L. Findlay, J. W. Macfarlane and M. M. Stevenson.—p. 306.
*Tonsillectomy in Prevention and Treatment of Rheumatism. L. Findlay, J. W. Macfarlane and M. M. Stevenson.—p. 313.
Nontuberculous Plastic Pleurisy in Children. W. M. Whitaker.—p. 323.
Pulmonary Embolism in Childhood. J. M. Smellie.—p. 328.
*Congenital Cardiac Disease in Identical Twins. K. S. Smith.—p. 330.
Changes in Blood Chemistry in Congenital Hypertrophic Pyloric Stenosis and Clinical Significance. S. Graham and N. Morris.—p. 335.

Leukocyte Count in Rheumatic Heart Disease in Childhood.—In an endeavor to ascertain whether the leukocyte count in rheumatic heart disease might serve as a useful index of activity of the infective process, Perry made repeated white cell counts on forty-one children. All the cases were under the action of salicylate in some form or another. From his results it would appear that acute rheumatic carditis is associated with a mild leukocytosis, with a neutrophil increase. The total cells fall fairly early in convalescence and there sometimes occurs a postinfective lymphocytosis, which is often accompanied by the usual eosinophilia. The leukocytosis recurs with relapses. However, the leukocyte count is of no value as an index of activity in rheumatic heart disease. There is no evidence of an eosinophilia in chorea.

Acute Sensitization in Infant to Cow's Milk Protein.—In the case described by Ashby, eczema developed at the age of 3½ months, possibly because of the foreign protein of the milk taken by the mother passing through into the human milk. The baby gave a mild positive skin reaction to the mother's milk. The process of desensitization consisted in giving minute doses of cow's milk at the start and gradually increasing the dose day by day. The increase of dose is governed by the ability of the infant to take the quantity of milk without developing any reaction. If a reaction such as urticaria or irritability is noticed, the dose must be kept the same for a time or even reduced for a day or two. In an extreme case it is wise to go slowly and not to hurry, as a setback is serious and prolongs the desensitizing time. Later on, the rate of increase of the milk can be made more quickly. For the immediate treatment and relief of the acute symptoms a hypodermic injection of epinephrine (1:1,000) should be given.

Pneumonia in Childhood.—In a clinical series of 648 cases of pneumonia in children from birth to twelve years, analyzed by McNeil et al., empyema occurred in eighty-nine, a frequency of 1 in 7. The incidence was lower in the earlier age periods and was appreciably higher in later childhood. Thus, in the periods from birth to 2 years and from 2 to 5 years, it was almost equal, 1 in 10; while from 5 to 12 years it was 1 in 5. There were three examples of well marked pyopneumothorax in the series. For the total, the mortality was 40.5 per cent. Up to 2 years of age it was 75 per cent; from 2 to 5 years it was 31.5 per cent; from 5 to 12 years it was 8.5 per cent.

Bacteriology of Bronchopneumonia of Children.—In thirty-three out of forty cases of bronchopneumonia studied bacteriologically by Liston, a pure culture of Pfeiffer's bacillus was obtained from one source or another. In five other cases, for one reason or another, a pure culture of Pfeiffer's bacillus was not obtained, though these organisms were recognized to be present by microscopic examination. In two cases only, no evidence was obtained that Pfeiffer's bacillus played any part in the cause of the condition. They were cases of extensive suppuration of the lungs. Liston is convinced that this organism opens a path to the invasion of the body by secondary organisms, particularly streptococci, pneumococci and staphylococci, as well as other organisms. The latter organisms may be found in the blood, causing septicemia or pyemia, in the serous cavities giving rise to empyema, peritonitis, or pericarditis; and they are frequently the cause of abscess formation in the lungs.

Acid-Base Equilibrium of Blood in Acute Rheumatism.—Parsons and Edgar assert that the acid-base equilibrium of children suffering from acute rheumatism, whether in the acute, convalescent or quiescent stages of the disease, is normal. There is no evidence in favor of the view that the symptoms of rheumatism are due to an excess of acid in the tissues, or that the rheumatic child is an "acid" child.

Tonsillectomy in Prevention and Treatment of Rheumatism.—Findlay et al. conclude that a preliminary tonsillectomy may possibly render an individual less susceptible to rheumatic arthritis but not to chorea. A preliminary tonsillectomy or one performed early during the course of the infection may possibly, in the case of arthritis, render the heart less liable to be attacked but not so in the case of chorea. As, however, cardiac complications usually ensue during the first or second rheumatic manifestations, the operation to be prophylactic must be performed before the second attack. Tonsillectomy in the case of carditis following arthritis seems to have a beneficial effect on the progress of the disease but not so in carditis following chorea. The evidence in favor of the beneficial effect of tonsillectomy in the case of rheumatic manifestations characterized by arthritis is, however, slight. The varying behavior in response to tonsillectomy of examples of the rheumatic infection characterized by chorea and by arthritis suggests the possibility of a different strain of the infective agent in these two types of the disease.

Congenital Cardiac Disease in Identical Twins.—Three cases of congenital cardiac defect affecting one or both of twins are described by Smith. Two of these are taken from the literature; the third instance in which patency of the ductus arteriosus existed as a solitary cardiac defect in both of the twins is here newly recorded. The clinical course and pathologic observations in the author's cases are described, and reference is made to the manifestations observed in other cases of patent ductus arteriosus occurring as a solitary abnormality in infancy. The origin of congenital defects in twins is discussed. The symptoms corresponding to patency of the ductus arteriosus, and the probable mode of production of the syndrome, are outlined.

British Medical Journal, London

2: 745-790 (Oct. 26) 1929

Aspects of Problem of Epilepsies. S. A. K. Wilson.—p. 745.
Tuberculosis of Larynx. W. G. Howarth.—p. 749.
Id. S. Thomson.—p. 751.
*Pellagra Among Maize-Eating Natives of Union of South Africa. E. H. Cluver.—p. 751.
Beaufort Artificial Limb with Recent Modifications. C. W. Cathcart.—754.
*Treatment of Pneumonia in Children by Subcutaneous Oxygen. T. M. Montford.—p. 757.
*Bacteriology of Tonsils in Relation to Rheumatism in Children. D. Nabarro and R. A. MacDonald.—p. 758.
*Unusual Infective Condition of Bladder. E. Wordley.—p. 759.
Rupture of Jejunum. J. B. Marinan.—p. 760.
Endocarditis with Emboli in Both Femoral Arteries. A. G. B. Fenwick and H. C. Dundon.—p. 760.

Pellagra Among Maize-Eating Natives of Union of South Africa.—Though the Bantus are largely and often almost exclusively maize-eating, Cluver says that pellagra has been rare in South Africa. There have been only three outbreaks of any significance; namely, in 1906 in Zululand, in 1912-1913 in Pretoria Mental Institution, and a recent outbreak among Durham prisoners. These and a few other isolated cases are tabulated.

Treatment of Pneumonia in Children by Subcutaneous Oxygen.—With the object of investigating the immediate effects of oxygen administered subcutaneously on the patient, and the more lasting effect on the course of the illness, 179 children were treated by Montford with relatively large doses of oxygen injected into the subcutaneous tissues. Each patient with acute pneumonia, irrespective of the type, the etiology or the severity of the disease, received oxygen as early as possible. As a control, Montford made notes on eighty-nine

consecutive cases in which subcutaneous oxygen was not administered. In each series, simple expectant and counterirritant remedies were employed as seemed indicated in each particular case. All the patients were nursed in open-air pavilions in charge of the same sisters. The area of skin raised from the chest wall by 100 cc. of oxygen slowly injected was found to be equal to the area covered by the palm of a man's hand. This rule was fairly accurate and was followed in this series, from 50 to 200 cc. being injected at a time. Generally two or more doses were given. If on the day following the first treatment the temperature had not fallen, or if it had fallen and then became raised, as was a frequent occurrence, a second dose was administered. The average aggregate dosage was: up to 5 years of age, 200 cc.; from 6 to 10 years, 300 cc.; from 10 to 16 years, 400 cc. Within four hours after the injection the temperature, as a rule, fell, sometimes to normal. This was accompanied by a partial fall in the pulse rate. The lowering in the pulse and respiration rates was less obvious than the fall in temperature. Dyspnea was eased. If cyanosis was a feature, within an hour the color was improved. In four cases of pulmonary tuberculosis with cyanosis treated by this method, a similar phenomenon was noted. However, in all four relief was transitory and the course of the disease either was not affected or it was expedited. No improvement occurred in the congestion of the face of a girl suffering from acute rheumatic myocarditis. The patients soon became less distressed (roughly in four to twelve hours), and as a rule slept comfortably. On the following day the general condition was improved except in some of the fatal cases. In no case did a crisis take place, the temperature falling by lysis. The use of subcutaneous oxygen did not have a beneficial influence on the mortality. It was 25 per cent in both treated and nontreated cases. The average length of the febrile stage was shorter in the oxygen group. The average length of the course of the disease was lessened in the oxygen series.

Bacteriology of Tonsils in Relation to Rheumatism in Children.—Nabarro and MacDonald are convinced that streptococci isolated from rheumatic tonsils do not differ materially from those isolated from nonrheumatic tonsils. This absence of difference fits in with the theory that there is no specific streptococcus which is the cause of rheumatism but that the condition is due to a hypersensitiveness resulting from repeated small doses of toxin. The tonsil is probably one of the foci from which these toxins may be absorbed. For this reason, in spite of the lack of difference mentioned, tonsillectomy in rheumatic cases is probably a valuable prophylactic and therapeutic measure.

Unusual Infective Condition of Bladder.—A case of cystitis is reported by Wordley in which an atypical bacillus resembling *B. coli-anacrogenes* and Sonne's bacillus was apparently the infecting organism. The curious fact was that many times no growth could be obtained, although the urine was swarming with bacilli. No lysis of the cultures subsequently obtained was ever noted.

British J. Radiology, London

2: 459-498 (Oct.) 1929

Progress and Limitation in Curative Treatment of Malignant Neoplasms by Radium. C. Regaud.—p. 461.
Ultraviolet Radiation in Treatment of Skin Ulcers. M. Weinbren.—p. 477.

Lancet, London

2: 859-910 (Oct. 26) 1929

Future of Obstetric Practice. H. Jellett.—p. 859.
*Schilder's Disease (Encephalitis Periaxialis Diffusa): Case. C. T. C. de Crespigny and H. H. Woollard.—p. 864.
Therapeutic Uses of Luminal. W. R. Brain.—p. 867.
Human Infection by American Hog-Cholera Bacillus: Two Cases. D. Nabarro, P. B. White, S. C. Dyke and W. M. Scott.—p. 868.
*Treatment of Purulent Pleurisy by Pleurotomy and Balneotherapy. J. S. Passeron.—p. 870.
Principles in Treatment of Common Deformities. N. Dunn.—p. 871.
Implantation of Epithelioma in Alveoli of Maxilla from Primary Growth in Tongue. J. B. Oldham:—p. 873.
Gas and Oxygen in General Surgery. A. W. Henderson.—p. 873.

Schilder's Disease.—De Crespigny and Woollard relate the case of a previously healthy child of 8 years who suffered from a progressive illness lasting between five and six months. Failure of hearing and spastic paraplegia were the first symptoms. Then there was rapidly increasing speech defect leading to complete dumbness. Sight was more gradually lost, and spastic paralysis increased in the lower limbs and extended to the upper. Death occurred rather suddenly a few hours after the onset of acute symptoms of cerebral inflammatory type. Postmortem examination showed no abnormality except in the brain.

Treatment of Purulent Pleurisy by Pleurotomy and Balneotherapy.—Passeron asserts that the evacuation of pus from the pleural cavity is best attained by making a complete opening under local anesthesia in an intercostal space along the posterior axillary line of the side affected. The superficial incision can be made anywhere, but the patient is transferred to a bath for the purpose of deepening the incision under water, the temperature of the bath being from 104 to 108.6 F. The bath is flamed and filled to a convenient level, and the patient is washed down with soap and water. He sits in the bath so that the water covers the superficial incision, which is then deepened until pus is found. The edges of the wound are held apart by large forceps like sinus forceps. This brings about an interchange of pus and water, and greatly favors the expulsion of fibrinous exudations by respiratory impulse. The greatest possible quietness is maintained, and when the pleural lavage is considered sufficient the patient is laid down outside the bath; this brings about the expulsion of almost all the remaining fluid under respiratory impulse. A pad of sterilized absorbent cotton is then placed over the wound and makes it a closed cavity. Under these conditions the surgical dieresis performs the function of a valve which, by excess pressure, allows the intrapleural air to escape without admitting an equal amount; this promotes expansion of the lung. Later treatment consists in repeating the bath after washing down, opening the wound fully by large forceps, and thereby promoting lavage of the pleural cavity. The duration, frequency and temperature of the baths should be governed by the general condition. In serious toxic cases, Passeron advises two baths daily, of five minutes' duration; in cases of medium intensity a daily bath of ten minutes suffices. According to his condition and stamina, the patient should get up and gain strength. The diet should be as nourishing as possible.

Journal d'Urologie Médicale et Chirurgicale, Paris

28: 113-208 (Aug.) 1929

Invisibility of Calculi in Roentgenography of Bladder. J. Mombaerts.—p. 113.
Hemorrhage from Prostate in Relation to Hypertrophy. V. Vintici and A. Laroche.—p. 140.
*Air Embolism During Operation on Urinary Bladder. C. P. Mathé.—p. 163.

Air Embolism During Operation on Urinary Bladder.—Mathé's, patient, a powerful and vigorous man, aged 56, presented symptoms of hypertrophy of the prostate. Cystoscopic examination confirmed the diagnosis and also revealed the presence of a papilloma on the bottom floor of the bladder. As the patient was otherwise in good condition, prostatectomy and simultaneous removal of the growth from the bladder were decided on. Under anesthesia—the capacity of the bladder having previously been estimated—about 300 cc. of air was injected into the bladder with a syringe. Before the abdominal incision was made, however, a whistling noise was heard, the patient became cyanotic and, in spite of all attempts to save his life, suddenly collapsed and died. Necropsy, performed twelve hours later, revealed the presence of air bubbles in the iliac and mesenteric veins. Both lungs, the liver and the right ventricle of the heart were filled with a thick foam. The arteries of the heart were in an advanced stage of sclerosis. The walls of the bladder were considerably thickened. There was present intravesical hypertrophy of the prostate, coincident with an ulceration of the cervix of the bladder and cancerous degeneration of the papilloma as well as the surrounding muscular tissue. Mathé decided to send out a questionnaire, following his experience in this case, to which he received 800 answers. Five hundred and eighty-eight urologists preferred to use a fluid in distending the bladder. Forty-seven used air, six oxygen and eighteen operated without preliminary distention. A number of urologists use water in general, but prefer air for cystoscopy. Many consider water dangerous as it may be a means of carrying infection into the bladder. On the basis of these reports, a study of the literature and his personal

experience, Mathé concludes that, although distention of the bladder with air is not dangerous under normal conditions, it is dangerous in pathologic conditions. If an ulceration, tumor, inflammation or injury of the mucous membrane of the bladder is present, danger of an embolism occurring is imminent, especially if the insufflation is done under pressure. Distention of the bladder or urethra by means of air should be performed with the greatest care. Insufflation of air into the bladder or urethra for operative or diagnostic purposes should be discontinued entirely and should be replaced by the injection of antiseptic solutions or sterilized water.

Lyon Chirurgical, Lyons

26: 465-639 (Aug.-Sept.) 1929

*Pedicled Graft of Fibula After Resection of Tibia on Account of Sarcoma: Result After Twenty Years. F. Gentil.—p. 465.
Traumatic Rupture of Transverse Sinus. A. Ricard.—p. 476.
Abscess of Brain and Cerebellum (Encephalitic Type): Clinical Course and Treatment. H. Aloin.—p. 503.

Resection of Tibia on Account of Sarcoma: Replacement by Pedicled Graft of Fibula: Result After Twenty Years.—Twenty years ago Gentil resected 20 cm. of the tibia in a girl, aged 14, because of an extensive tumor of the bone. Using the technic of Ollier, he separated the periosteum from the fibula, keeping the insertions of the muscles intact. He cut the diaphysis of the fibula with a Gigli saw by subperiosteal section. To preserve the tibiotarsal articulation and as a support for the malleoli, he joined the diaphysis of the fibula to the lateral malleolus with the aid of the periosteum of the fibula. This had been incompletely detached from the bone, favoring nourishment of the graft by its own artery. As far as he was able to do so, Gentil left all the blood vessels and nerves intact. He ligated only the main artery of the tibia, which was enlarged, and two or three of its branches leading into the muscular tissue. The continuity of the bone was established by wiring the bone ends with silver wire. This also prevented a secondary shortening of the leg. The wound healed by first intention. Ten years after the operation, pain and edema in the right ankle were noted and an abscess formed. On removal of the silver wire, under local anesthesia, these symptoms disappeared. Except for an inflammation of the sigmoid flexure, dolichocolon and pericolitis, seven years later, the patient has been in perfect health.

Paris Médical

2: 237-256 (Sept. 21) 1929

Alimentary Anaphylaxis. G. Laroche, C. Richet, Jr., and F. Saint-Girons.—p. 237.
Congenital Scoliosis. C. Rœderer and H. Dijonneau.—p. 240.
*Insulin in Treatment of Pernicious Anemia. V. Varga.—p. 249.

Insulin in Treatment of Pernicious Anemia.—On the basis of his personal experience in eight cases and a review of the literature, Varga advises the administration of insulin with liver therapy in pernicious anemia. He considers it especially invaluable in severe cases when, as the result of anorexia, the ingestion of liver is reduced or even stopped. The alkalinity of the blood is increased, the appetite is stimulated and the hormonal disturbances are inhibited.

Presse Médicale, Paris

37: 1261-1276 (Sept. 28) 1929

*Antirachitic Action of Irradiated Snail Lipids. G. Mouriquand and A. Leulier.—p. 1261.
Tuberculosis of Tracheobronchial Lymph Nodes. P. F. Armand-Delille, C. Lestocquoy and J. Vibert.—p. 1262.
*Lung Irrigation: Method. Garcia Vicente.—p. 1266.
*Function of Anterior Lobe of Pituitary Body: Experimental Study on Rabbit. P. Stricker and F. Grueter.—p. 1268.

Antirachitic Action of Irradiated Snail Lipids.—The calcium metabolism of snails was of especial interest to Mouriquand and Leulier in their search for fixators of calcium in the animal kingdom. The calcium content of the blood of snails is three times greater than that of human blood. Analysis disclosed that besides cholesterol, snails contain also unknown lipids. Two rats kept in the dark and fed on diet 85 of Pappenheimer, to which viosterol (irradiated cholesterol) derived from snails was added for one animal and nonirradiated cholesterol for the other, developed rickets within thirty days. Two rats under the same experimental condition but to which nonirradiated snail lipids were administered likewise developed rickets. Three rats, however, fed with irradiated snail lipids were in perfect condition at the end of the experiment. Mouriquand and Leulier stress the value of irradiated snail lipids in view of the fact that viosterol has proved to be toxic in certain instances and that therefore it is necessary to find a substitute which is more closely related to the human stearins and does not become toxic after irradiation.

Lung Irrigation: Method.—Garcia Vicente's method consists of washing out each lung with physiologic solution of sodium chloride by means of a tube introduced through the larynx. To protect the vocal cords he uses forceps whose blades are hollow cones through which the tube is passed and which are then removed. General anesthesia, which might prevent normal reflex action, is not advised but local anesthesia (with a 5 per cent solution of procaine hydrochloride) is used. In children several drops, in adults from 2 to 5 cc., is injected through the larynx with a special syringe. On the day before the irrigation a mixture of aromatized oil is injected into the trachea. The technic is the same as in the following lung treatment. The patient, who should not have partaken of food, is first placed in a sitting position. Forceps with conical blades are guided into the mouth by the left index finger, which raises the epiglottis if necessary. The right hand now introduces the tube (a number 14 urethral catheter for children, a number 15 for adults), whereupon the forceps are removed. For lung irrigation the patient is now placed in a position of lateral decubitus toward the lung which is to be washed out, with the head from 15 to 20 cm. lower than the pelvis. The tube should not be passed farther than to the bifurcation—for this purpose it is well to measure the approximate path of the tube on the outside before introduction. The fluid is now introduced either by means of a syringe or by an irrigation apparatus. From 60 to 100 cc. is allowed to enter before a return flow appears. Once this is established, it continues without causing the patient any discomfort. Garcia Vicente used from 0.5 to 2 liters of isotonic physiologic solution of sodium chloride heated to 38 C. (100.4 F.). The duration of the irrigation is not more than from three to five minutes. After each irrigation the temperature of the patient rises; however, Garcia Vicente observed that the reaction was considerably lessened after repeated irrigation of one lung. If the second lung is irrigated the temperature again rises. According to Garcia Vicente, indication for this intervention is given in patients with bronchopulmonary involvement for the purpose of withdrawing exudates. It is also indicated in bronchial dilatations and pulmonary gangrene. It may render service in the extraction of foreign bodies.

Function of Anterior Lobe of Pituitary Body.—Stricker and Grueter report the effect of subcutaneous injection of total extracts of the anterior lobe of the pituitary body on the genitalia and mammary glands of female rabbits. Heating of the extracts to 80 C. (176 F.) destroyed the active principle. However, heating for an hour at 70 C. (158 F.) did not inhibit their action. Extracts which were freed from proteins did not have any effect on the mammary gland, although the ovaries did react. Since it is impossible at present to determine the amount of the hormone of the anterior lobe of the hypophysis in extracts, the authors state the dose they administer in terms of the number of grams of anterior lobe used. For preservation of the extract, they use cresol. Two injections, each corresponding to 0.5 Gm. of the anterior lobe, into rabbits which had not reached puberty, caused enlargement and hyperemia of the ovaries, marked enlargement of the follicles and sometimes the formation of corpora lutea. After a series of from six to twelve injections still greater changes were found in the ovaries but the mammae did not present signs of development. In adult female animals from four to eight injections, corresponding to 1 or 1.5 Gm. of the anterior lobe, produced a violent reaction in the ovaries. The uterine horns were thickened and presented on microscopic examination the same changes as those present before implantation of an ovum. It was possible to induce rupture of the follicle without sexual intercourse having occurred. In nine adult female rabbits that had been subjected to coitus with rabbits in which bilateral ligation of the ductus deferens had been performed, the administration of the extract caused the production of milk in the mammae. In four other rabbits in which the ovaries were resected ten days after the

sterile copulation, injection of the extract likewise caused the production of milk. In castrated adult animals injection of the extract was followed by congestion in the uterus and the tubes, although the horns did not react as strongly. The mammary glands, however, were exceedingly active, even if the process of involution had occurred for several weeks. It was not possible, however, to stimulate the mammary glands in castrated females which had not been pregnant previously or had not been subjected to infertile copulation. Injection of the extract during gestation always incited lactic secretion, both in rabbits and in guinea-pigs, but except in one case on the day preceding the casting of a litter its administration was followed by abortion. Further experiments on the problem are under way.

37: 1277-1292 (Oct. 2) 1929

*Angina Pectoris: Action of Pancreatic Extracts in Treatment. H. Vaquez, R. Giroux and N. Kisthinios.—p. 1277.
Hypotensive Substance of Pancreas. P. Gley and N. Kisthinios.—p. 1279.
Nasal Suppurations: Antivirus Therapy. R. Grain.—p. 1282.
Ergotamine Medication. R. Mignot.—p. 1284.

Angina Pectoris: Action of Pancreatic Extracts in Treatment.—Vaquez et al. obtained entire remission from attacks in fourteen of twenty patients suffering from angina pectoris; improvement was noted in the condition of six other patients. Their experience covers a period of from eight to nine months. They inject pancreatic extract which has been freed from insulin according to the procedure of Gley and Kisthinios. A physiologic measure is given by standardizing the amount that causes hypotension when injected into the jugular vein of a rabbit weighing 2 Kg. The administration of this substance may be combined with ouabain and digitalis medication. Vaquez et al. advise the daily injection for from fifteen to twenty days of 40 units (2 ampules) of the extract. This therapy is without danger as the substance does not possess hypoglycemic action and is not toxic.

Revue de Chirurgie, Paris

67: 265-321, 1929

*Hernias of Omental Bursa. H. Godard and P. Smith.—p. 265.
Intussusception of Appendical Origin. P. Bohême and P. Reny.—p. 287.
Neurosyphilitic Arthropathies. H. Oberthur.—p. 304.

Hernias of Omental Bursa.—In Godard and Smith's patient, a man, aged 34, gastro-enterostomy had been done three months previously on account of severe pain in the stomach. A short period of relief after the operation was followed by renewed attacks of pain concurrent with bilious vomiting. Roentgenography disclosed that the stomach was stretched and contained a certain amount of residual fluid after a bismuth test meal and that a pyloroduodenal "dislocation" was present. The stoma of the gastro-enterostomy did not seem to function, a marked duodenal stasis was evident and the duodenojejunal angle reached as far up as the lesser curvature. After incision of the abdomen, almost the entire small intestine was found lying on the stomach, omentum and transverse colon. A herniation of the small intestine through the transverse mesocolon into the omental bursa and then through the hepatogastric ligament into the peritoneal cavity had occurred. The hernia was reduced, but when the traction on the small intestine was released the intestine was again aspirated into the omental bursa. This incident demonstrated the extreme importance of careful suture of any transmesocolic opening due to operation, whether or not as a sequel to a gastro-enterostomy. The hernia was again reduced and since no signs of an ulcer were present the abdomen was closed. Recovery took place without any further complication. On the basis of an extensive review of the literature and a discussion of the various types of internal hernias and their treatment, Godard and Smith state that the prognosis is most favorable in hernias through the mesocolon; their occurrence after gastro-enterostomy is very frequent. On the other hand, hernias through the foramen of Winslow constitute an extreme danger because of the rapidity of their incarceration and the difficulty of operation.

Revue Médicale de la Suisse Romande, Lausanne

49: 569-664 (Sept. 10) 1929

Surgical Tuberculosis: Treatment in Vaud Canton. H. Vulliet.—p. 584.
*Nontuberculous Hemoptysis. H. Tecon.—p. 589.
Pathogenesis of Tuberculosis: Effect of Modern Views on General Practitioners. Löffler.—p. 617.

Nontuberculous Hemoptysis.—Tecon states that of 1,000 patients suspected of having tuberculosis (in 800 of whom examinations of the sputum were made) seventy-one were found to be suffering from hemoptysis caused by other bacteria than the tubercle bacillus. *Spirochaeta bronchialis* was found in 6 per cent of these cases, penicillium in 0.4 per cent and other fungi in 0.7 per cent. He distinguishes between hemoptysis originating from bleeding of the nose, the gums, the tongue or upper respiratory tract, and hematemesis from "true hemoptysis," which he defines as bloody sputum or light red blood originating from the respiratory tract which discloses an intrapulmonary effusion of blood. Tecon stresses the importance of pathologic anatomy as a guide in the diagnosis. As the main causes of nontuberculous hemoptysis may be noted cardiovascular disease, cancer, syphilis, uncomplicated influenza, lesions in the respiratory tract caused by a hydatid cyst, bronchial calculi, and spirochetal and mycotic infections. Other causes are infectious diseases, intoxication, pneumonia and pulmonary gangrene. On the basis of his experience he concludes that in every case of hemoptysis one should look for the tubercle bacillus. In every case presenting clinical symptoms of tuberculosis but in which the sputum examination has not disclosed the presence of the tubercle bacillus, it is essential to demand a complete bacteriologic examination as general routine.

Pediatria, Naples

37: 1051-1106 (Oct. 1) 1929

*Value of Meinicke Clarification Test in Serologic Diagnosis of Syphilitic Infection. M. Miraglia.—p. 1051.
Complement Value of Blood Serum in Infants with Nutritional Disturbances. B. Vasile.—p. 1059.
*Viscosity of Blood in Various Infections of Childhood. C. Catteruccia.—p. 1067.
So-Called Capillary Fragility in Childhood. A. Tenconi.—p. 1073.
Urinary Lithiasis in Childhood. C. Sorrentino.—p. 1093.

Meinicke Clarification Test in Serodiagnosis of Syphilis.—Miraglia found the Meinicke clarification test simple in its technic and easy to interpret. His observations lead him to regard it as more sensitive and, which is more important, as more specific than the Wassermann test. Tuberculous infection and exanthematic diseases do not seem to influence positively the Meinicke clarification test, although in certain cases the nonspecific positive results with the Wassermann test are to be attributed presumably to their influence. The Meinicke clarification test deserves, therefore, wide application, particularly in childhood, in which tuberculous infection occurs so frequently. One objection, however, to its wide employment in the case of children is the fact that it requires a relatively large amount of blood serum (0.70 cc.).

Viscosity of Blood in Various Infections of Childhood.—Catteruccia concludes from his researches and observations that in infectious diseases, with few exceptions, there is an increase of the viscosimetric coefficient of the blood. There are marked increases in the values in the more grave types and changes parallel with the course of the disease in the majority of cases. The viscosity may attain the highest values in the preagonal and the agonal states. Serum treatment and vaccine treatment (especially by the intravenous route) cause a temporary increase of viscosity. In malaria there is a characteristic course of the viscosity during the three stages of the febrile attack. This observation points to an opportunity of applying frequent systematic tests in the various phases of certain diseases, in order to establish the viscosity curves, which might assume considerable practical importance along with other clinical tests.

Policlinico, Rome

36: 1383-1418 (Sept. 30) 1929. Practical Section

Vesical Hernia. E. Sciaky.—p. 1383.
*Hypernephroma of Right Kidney. G. Petta.—p. 1386.
Common Errors in Extraction of Foreign Bodies from Esophagus. E. Rubaltelli.—p. 1388.

Hypernephroma of Right Kidney.—Petta describes a case of hypernephroma in a man, aged 38. The tumor developed in the upper pole, with hematic pseudocysts communicating with the ureter. The first and dominant symptom was hematuria. The pain was of the colicky type. The kidney was increased in size. An operation was performed three months after the first appearance of hematuria. There has been no recurrence to date (113 days).

36: 1419-1458 (Oct. 7) 1929. Practical Section

*Hemolytic Anemia with Hemosiderinuria Perpetua. E. Marchiafava.—p. 1419.

Autovaccinotherapy in Ulcerative Epitheliomas of Cervix Uteri. F. Speciale.—p. 1425.

Hemolytic Anemia with Hemosiderinuria Perpetua.—Marchiafava recalls a case, previously reported, of hemolytic anemia without icterus or splenomegalia but with hemosiderinuria perpetua and recurrent attacks of hemoglobinuria. He gives now the subsequent developments. Splenectomy has brought no improvement. Transfusion of blood, which before splenectomy was not well borne, has since caused marked, though only temporary, improvement of the symptoms. The author holds that the type of hemolytic anemia present in this case is independent of any abnormal functioning of the spleen. If the improved tolerance and the benefit of the blood transfusion were the only gain from the splenectomy, it would not be a failure, for it has furnished a certain and promptly effective mode of treatment that can be repeated as the indications may warrant.

Semana Médica, Buenos Aires

36: 737-812 (Sept. 12) 1929

Paralytic and Functional Vertical Strabismus and Torticollis: Surgical Treatment. R. Argañaraz.—p. 737.

Experiments on Toxic Action of Methyl Alcohol. G. Marinesco, S. Z. Draganesco and D. Grigoresco.—p. 745.

Gastrectomy in Gastric and Duodenal Ulcers. R. Finochietto.—p. 748.

Studies on Perimetry. A. J. Manes and J. Malbrán.—p. 752.

Mistaken Diagnosis of Pregnancy in Cases of Cystocele and of Menopause. T. A. Chamorro and H. E. Cuello.—p. 763.

Modification in Technic of Operation for Hydatid Cysts. A. A. Alsina.—p. 764.

*Effect of Ultraviolet Rays in Hypogalactia. J. C. Traversaro and A. González Collazo.—p. 766.

End-Results of Gastro-Entero-Anastomosis. R. Solé.—p. 776.

Whooping Cough and Tuberculosis. C. Fonso Gandolfo and J. R. Blanco Vitorero.—p. 787.

Postoperative Renal Fistulas Cured by Use of Permanent Ureteral Catheter. J. Salleras and A. Serantes.—p. 792.

Craniofacial Dysostosis and Congenital Malformations. J. M. Macera and I. Feigues.—p. 793.

Effect of Ultraviolet Rays in Hypogalactia.—Traversaro and González Collazo describe the technic which they used in the treatment of thirty mothers with hypogalactia. The breasts were first emptied and the nipples were coated with petrolatum. The patient assumed the recumbent posture; after her head had been covered with a dark cloth the ultraviolet irradiation was given over a wide area of the breast. The first treatments were given at intervals of two days and lasted from three to five minutes. As soon as the milk secretion increased, the irradiations were either discontinued or given at greater intervals and lasted longer than the first irradiations. All these treatments were made at a tube distance of 75 cm. The entire treatment consisted of from five to eight irradiations. Twenty-three mothers showed a marked increase in the secretion of milk, excellent in some of them and sufficient in the remainder to make artificial feeding unnecessary. In the other patients the results could not be estimated because they discontinued the treatment.

36: 813-888 (Sept. 19) 1929

*Ventricular Electrocardiogram in Myocardial Infarct. T. Padilla and P. Cossio, Jr.—p. 813.

Effects of Vitamin D in Craniotabes: Necessity for Biologic Control of Commercial Vitamin Preparations. J. P. Garrahan and J. C. Traversaro.—p. 824.

Indications of Paracentesis Tympani in Treatment of Latent and Acute Otitis Media in Infants. Y. Franchini.—p. 827.

*Insulin in Treatment of Hyperemesis Gravidarum. R. Schwarcz and J. R. Obiglio.—p. 830.

Torsion of Hydatid of Morgagni in Testis. A. Lagos García and A. Cucullu.—p. 836.

Perforated Gastric and Duodenal Ulcers. A. Yódice.—p. 843.

Osteartritis of Both Hip Joints and Subluxation of Left Joint After Puerperal Infection. J. Bazán and B. A. Viola.—p. 846.

Importance of Pyelography with Patient Standing in Diagnosis of Renal Ptosis. J. Salleras and L. D. Arrues.—p. 850.

Pathologic Dislocation of Hip Joint Caused by Suppurative Arthritis as Complication of Puerperal Infection. A. J. Pavlovsky, R. G. Paterson, R. Savage and P. Landa.—p. 852.

Osteogenesis Imperfecta. H. L. Montarcé.—p. 856.

Lateral Incurvation of Body as Sign of Pleurobronchopulmonary Neoplasms. P. Cossio, Jr.—p. 867.

Surgery of Ascites in Cirrhosis of Liver. W. Tejerina Fotheringham.—p. 871.

Ventricular Electrocardiogram in Myocardial Infarct.—Padilla and Cossio studied the alterations in the electrocardiograms of eight patients with myocardial infarct. The changes in the electrocardiograms after coronary thrombosis depend on three factors: (1) the extension of the lesion, (2) its localization and (3) its time of evolution. These three factors may act either singly or in association in modifying the ventricular electrocardiogram of myocardial infarction, one or another predominating according to circumstances. The authors say that myocardial infarcts are most common in the left ventricle, and when an infarct is present in the right ventricle it represents only an extension of an infarct in the left ventricle. They divide myocardial infarcts into large, medium and small infarcts. Large infarcts include the massive infarcts in the left ventricle and in some portions of the right ventricle. Because of the seriousness of the attack the exact locality of the lesion as well as the time of evolution of the disease cannot be determined in this type of infarct and the changes in the electrocardiogram, especially in arborization block, correspond to those observed in all severe and extensive processes in the myocardium. Medium sized infarcts may be localized either in the apex or in the posterior aspect of the ventricle. In both types the time of evolution is represented by three periods. In both types, also, changes in the QRS and in the RS-T segment during the first period, changes in the RS-T segment during the second period and changes of T during the third period are observed. The small infarcts may be localized, either in the ordinary myocardium or in the specific myocardium. In both types the time of evolution cannot be estimated. The electrocardiogram in these small infarcts does not reveal changes in the first type, and in the second type it shows slight auricular and ventricular block. One of the authors' patients had a large myocardial infarct. He died forty-eight hours after the onset of the attack. Six had medium sized myocardial infarcts and one had a small myocardial infarct. Only in medium sized myocardial infarcts was the electrocardiogram of diagnostic value. It permitted, in the authors' cases, the diagnosis of the lesion, first, and then its localization.

Insulin in Treatment of Hyperemesis Gravidarum.—Schwarcz and Obiglio treated successfully with insulin five patients with severe or moderate hyperemesis gravidarum. Without altering the ordinary diet and after the urine had been examined, the treatment was begun with 5 units of insulin. Half an hour before the insulin was injected, sugar was given them to eat, in such amount that they ingested from 2.5 to 3 Gm. of sugar for each unit of insulin to be injected. If the patient vomited the sugar, another piece of sugar was dissolved in the least possible amount of water, or soaked in alcohol and then given to the patient. The dose of insulin was slowly increased according to the reaction or the tolerance of the patient to the injection. The maximum daily amount was 20 units, 10 in the morning and 10 in the evening. In some cases 20 units were given at one time, every other day. When, during the day on which the maximum dose was given, phenomena of hypoglycemia appeared, the patients were advised to drink sugar water. In severe cases (with dehydration) dextrose solution should be given intravenously. In cases of eclampsia, after the administration of sugar the treatment is begun with from 20 to 40 units of insulin, from 1 to 2 Gm. of dextrose being given for each unit of insulin. In the authors' cases improvement was observed at the first injections. The vomiting decreased and sometimes it disappeared entirely; in some cases it reappeared at the time when menstruation would have occurred ordinarily or the improvement was transient. Untoward effects were not observed.

Beiträge zur Klinik der Tuberkulose, Berlin

72: 217-332 (July 15) 1929

*Registration of Movements of Thoracic Wall. Anthony and Hansen.—p. 217.

*Movements of Thoracic Wall in Unilateral Diseases of Lung and Pleura. Anthony and Hansen.—p. 221.

Early Infiltrate in Pulmonary Tuberculosis. A. Moeller.—p. 229.

Recognition of Commencement of Tuberculosis. E. Schulz.—p. 234.

*Sources of Infection in Tuberculosis in Nurslings. E. Stransky.—p. 242.

*Dietary Treatment of Pulmonary Tuberculosis According to Sauerbruch, Herrmannsdorfer and Gerson. F. Liesenfeld.—p. 252.

Bodily Exercise in Tuberculosis. C. Faiwushinski.—p. 260.

Relations Between Acute Infiltrate and Apical Involvement in Pulmonary Tuberculosis. E. Haeger.—p. 266.

*The "Other Side" in Pneumothorax Therapy. A. Baer.—p. 290.
Biologic Action of Roentgen Rays in Tuberculosis. G. Brdiczka.—p. 298.
Idem. G. Brdiczka.—p. 312.
*Acid Intoxication in Pulmonary Tuberculosis. F. Pomplun.—p. 324.

Registration of Movements of Thoracic Wall.—Anthony and Hansen state that in an apparatus for determining the effect of intrapulmonary and intrathoracic changes on the movements of both thoracic walls, the following requirements must be fulfilled: 1. It must be possible to record the movements of different points on the thoracic walls independently of each other. 2. The registration of the movements must occur as quantitatively as possible. 3. The use of the apparatus must not disturb the respiration of the patient. The authors give an illustrated description of a simple apparatus for registering quantitatively the movements of the thoracic wall.

Movements of Thoracic Wall in Unilateral Diseases of Lung and Pleura.—By means of their thoracograph Anthony and Hansen studied the movements of the thoracic wall in healthy persons and in patients with pathologic conditions of one lung and one pleura. In normal persons the differences between the movements of the walls of the two halfs of the thorax were slight but in unilateral pulmonary tuberculosis, pleural exudation, pleuritis sicca and pleural adhesions, they were marked. The authors discuss the relations between the movements of the thoracic wall, pulmonary ventilation and gaseous exchange.

Sources of Infection in Tuberculosis in Nurslings.—Stransky emphasizes the importance of intrafamilial infection in tuberculosis in nurslings. In seventy-one cases of tuberculosis in nurslings which he studied there were only fifteen cases of extrafamilial infection in contrast to three cases in which a fostermother, grandmother and grandfather had tuberculosis, three cases in which both parents had the disease and thirteen and thirty-seven cases, respectively, in which the father and the mother had been the source of infection.

Dietary Treatment of Pulmonary Tuberculosis According to Sauerbruch, Herrmannsdorfer and Gerson.—On the basis of a study of the effects of the Sauerbruch-Herrmannsdorfer-Gerson diet in his service comprising forty beds for patients with pulmonary tuberculosis who were kept at the hospital for from two to six months, Liesenfeld concludes that, although the diet has some good features, as a general method of treatment it should be discarded.

The "Other Side" in Pneumothorax Therapy.—Baer states that, although it was formerly thought that the induction of an artificial pneumothorax in one pleural cavity in bilateral pulmonary tuberculosis would cause an exacerbation of the process in the other lung, experience has shown that, on the contrary, the immobilization of the diseased lung and the resulting elimination of a continuous source of infection influence favorably the slight pathologic condition in the opposite lung. He reports a case of bilateral pulmonary tuberculosis in a student in whom the pathologic changes were more marked in the left lung than in the right; under treatment with left-sided pneumothorax the pathologic condition in both the left and the right lung retrogressed. In a short time pathologic changes could no longer be demonstrated by auscultation; later the roentgenogram, also, showed the unusual retrogression.

Mechanism of Acid Intoxication in Pulmonary Tuberculosis.—Pomplun believes that the increase in the lactic acid content of the blood in pulmonary tuberculosis is caused by a relative and absolute oxygen deficiency in the arterial blood. Determination of the gas and lactic acid contents of the blood shows that in severe pulmonary tuberculosis, more than is thought to be the case, there is an oxygen deficiency and a carbon dioxide excess with resulting insufficient oxidation in the form of an acid-autointoxication which is fairly well compensated during rest but becomes decompensated during slight exercise.

Deutsche medizinische Wochenschrift, Berlin

55: 1619-1658 (Sept. 27) 1929

Psychophysical Infantilism and Pathogenesis of Sexual Disturbances. O. Schwarz.—p. 1619.
Changes in Infectiousness of Measles. C. Noeggerath.—p. 1621.
Simplified Technic of Müller's Conglobation Reaction. R. Müller.—p. 1624.
Critical Estimation of Statistical Report on Rheumatic Diseases. G. Ernst and H. J. Broichmann.—p. 1625.
Indications for Limitation of Iodine Therapy in Exophthalmic Goiter. E. Herzfeld.—p. 1627.
*Contamination of Water Supply with Proteus as Cause of Epidemic of Proteus Infections. K. Beckmann and R. Hürthle.—p. 1628.
*Irradiated Milk for Family Use: Value of This Method for Prophylaxis of Rickets. J. Schönen.—p. 1629.
*Practical Results with Tuberculosis Vaccination According to Langer's Method. I. Zadek and M. Meyer.—p. 1630.
Investigations on Helminths, Especially on Dibothyrocephalus Latus and Opisthorchis Felineus. H. Vogel.—p. 1631.
Etiology of Infectious Processes in Dengue. K. N. Kyriasidis.—p. 1634.
Experiences with Plasmochin in Treatment of Autochthonous Malaria in Tropical Regions. C. M. Hasselmann and M. Hasselmann-Kahlert.—p. 1635.
*Mercury Poisoning Caused by Injury with Broken Thermometer. Drügg.—p. 1637.
Therapeutic Use of Charcoal in Gynecology and Obstetrics. H. Nahmmacher.—p. 1638.
Psychosexual Neurosis in Gynecology. A. Mayer.—p. 1639.
Infections with Brucella Abortus. H. Rosin and G. Elkeles.—p. 1640.
Sensitive and Simple Blood Test Especially for Use in Hematuria. P. Ziegelroth.—p. 1641.
Correction of Defects of Speech (Lambdacism, Gammacism, Rhotacism). A. Liebmann.—p. 1641.
New Polyausculoscope. W. Capser.—p. 1641.

Contamination of Water Supply with Proteus Bacillus as Cause of Epidemic of Proteus Infections.—Beckmann and Hürthle state that simultaneously with the contamination of the water supply by *Proteus vulgaris* numerous cases of proteus infections were observed. In the majority of patients the disease had the clinical aspects of a gastro-enteritis, and they recovered in a comparatively short time. Eighteen persons in whom the disease was especially severe were brought to the hospital. *Proteus vulgaris* was detected in thirteen patients. Nearly all of them showed the clinical aspects of gastro-enteritis paratyphosa. In four cases the disease showed the typical aspects of typhoid. Cholangeitis with icterus became manifest in two other patients. In the bile that had been obtained by means of the duodenal tube, *Proteus vulgaris* was demonstrated. In two other cases the authors demonstrated a mixed infection with *Bacterium dysenteriae*.

Irradiated Milk for Family Use: Value of This Method for Prophylaxis of Rickets.—Schönen reports on fifty-one children, between the ages of 4 months and 2 years. All these children belonged to the poorest class in the city and lived under unfavorable conditions. During the severe winter months from December, 1928, to April, 1929, 50 per cent of the milk which they received had been irradiated. Among these fifty-one children neither clinical nor roentgen examination disclosed a single case of rickets. Ninety-nine children of the same age, and living under the same conditions, did not receive irradiated milk. Twenty-five per cent of these acquired rickets.

Practical Results with Tuberculosis Vaccination According to Langer's Method.—Zadek and Meyer give a detailed report of their experiences with injections of killed tubercle bacilli according to Langer's method. Their observations extend over a period of five years. Because in intramuscular injection only one treatment is necessary, this method was adopted instead of the original intracutaneous injections. Three-tenths cubic centimeter of the vaccine is injected into the musculature of the thigh. Another advantage of the intramuscular injection is that it eliminates the local as well as the general reactions which are often noted in intracutaneous administration. The vaccination was performed on children who were not infected but who, by close association with tuberculous patients, were constantly exposed to infection. Following the vaccination, the tuberculin reaction became positive in all children. Concerning the duration of the positive allergy the authors state that the children who in 1924 were vaccinated according to Langer's method still give the positive reaction. Every six months they were carefully examined. The fact that, of thirty-four children who had undergone this treatment, and all of whom were exposed to infection, thirty-three remained free from tuberculosis, proves that simultaneously with the positive allergy the patients also acquire a relative immunity. Only one child contracted tuberculosis eighteen months after the vaccination.

Mercury Poisoning Caused by Injury with Broken Thermometer.—Drügg describes the case of a nurse who, in attempting to lower the column of mercury, broke a ther-

mometer. Splinters of glass penetrated into the left index finger. She removed these and bandaged the finger. One hour later she noticed on the skin and in the bandage numerous small drops of mercury. The small wound healed. However, fourteen days later a swelling developed. Roentgenoscopy revealed globules of mercury in the tissues. An incision into the swelling yielded mercury. After that the wound healed again. Then the patient became indisposed. She had pains in the back and in the region of the liver and she also complained of gastro-intestinal disturbances. The finger was incised twice and each time globules of mercury were removed. However, the general condition did not improve. The pains in the back became more severe. A test of the urine revealed protein. The lips were dry and the patient had a burning sensation on the oral mucous membrane. Gradually the typical symptoms of mercury poisoning became manifest, such as a gray discoloration of the gums, reddishness of the pharyngeal region and halitosis. Seven months after the injury the finger had to be amputated. The healing was without complications and the symptoms of mercury poisoning disappeared rapidly. The author points out that in every case of mercury poisoning roentgenoscopy should be done. It is advisable to make the incision sufficiently large so that the mercury can be eliminated. Massage should be avoided because it leads to further dissemination of the mercury.

Jahrbuch für Kinderheilkunde, Berlin

125: 127-252 (Oct.) 1929

athologic Conditions in Parenchyma of Kidney in Pyelitis. H. Rosenbusch.—p. 127.
Anticolibacillary Action of Colostrum. G. Abraham.—p. 160.
*Blood Pressure in Scarlet Fever. J. A. Edelmann.—p. 167.
*Cerebrospinal Fluid Pressure in Pathologic Conditions in Children. F. von Rohrböck.—p. 185.
Convulsions in Nurslings. A. Peiper.—p. 194.
*Dissemination of Tuberculosis by Tuberculin Positive Children. V. Poulsen.—p. 206.

Frequency, Prognosis and Treatment of Pathologic Conditions in Parenchyma of Kidney in Pyelitis.—Rosenbusch examined sixteen children with chronic recurrent pyelitis for signs of involvement of the parenchyma of the kidney. He demonstrated that in most of the cases at some time during the course of the pyelitis the kidneys showed pathologic changes. In most cases the renal changes do not become chronic. In a few cases, however, they persist. They may be accompanied by increased nonprotein nitrogen, by increased blood pressure and by phenomena revealed by the renal function tests and by the urologic methods of investigation; occasionally an involvement of the kidneys is revealed by purely clinical signs, as cylindruria and edema. Careful examination reveals an increased blood pressure much more frequently than is indicated in the literature. When the symptoms of renal disease appear early in pyelitis they indicate a descending infection; when they appear late they indicate an ascending infection. The author states that in the majority of cases the significance of renal complications for the prognosis in pyelitis is slight; the changes in the kidneys are transient and heal completely. In the treatment of changes in the parenchyma of the kidneys in pyelitis he recommends irrigations of the kidneys by means of the administration of sugar solution (Aron). He states that his results with this form of treatment in nephritis have been so good that he now prescribes sugar solution in pyelitis.

Anticolibacillary Action of Colostrum.—In experiments on guinea-pigs Abraham found that a simultaneous intravenous injection of 2 cc. of colon bacillus antitoxic serum protected the animals against the intraperitoneal injection of certainly fatal doses of colon bacillus endotoxin. The same effect was obtained by an intravenous injection of 2 cc. of colostrum obtained on the first or second day following labor. Colostrum obtained on the fourth or subsequent days was without effect. Mother's milk, cow's milk and normal guinea-pig serum were likewise without action. Even mother's serum in the first days following labor did not contain protective substances. In early colostrum colon bacillus agglutinins were demonstrated on an average between 1 : 160 and 1 : 320 but in one case at a titer of 1 : 1,280. The titer values fall rapidly with the length of time that elapses between labor and the collection of the colostrum; colostrum obtained on the fourth day post partum never has a higher titer than 1 : 80, doubtless because of the rapid decrease in its globulin content. Ripe mother's milk does not possess agglutinative properties.

Blood Pressure in Scarlet Fever.—Edelmann reports the results of 1,719 blood pressure determinations in 410 patients with scarlet fever. He states that the number of cases in which the blood pressure is increased is greater than the number of cases in which it is not increased (even in the first week of the disease); it is entirely independent of the further course of the disease, and varies from 65 to 70 per cent. In the second and third weeks the percentage of cases showing increased blood pressure decreases rapidly and approximates the percentage of cases not showing increased blood pressure. In scarlet fever complicated by nephritis the drop in the blood pressure does not occur. Beginning with the third week and continuing throughout the disease the number of cases associated with increased blood pressure rises again and reaches as high as 70 per cent and in cases complicated by nephritis as high as 80 or 90 per cent.

Cerebrospinal Fluid Pressure in Various Pathologic Conditions in Children.—Von Rohrböck determined the cerebrospinal fluid pressure forty times in twenty-two cases of congenital chronic internal hydrocephalus, three times in two cases of hydrocephalus with meningocele, eighteen times in two cases of rachitic hydrocephalus, twice in seven cases of hydromicrocephaly, fifteen times in ten cases of spasmophilia and eclampsia, once in one case of brain tumor, 146 times in sixty cases of tuberculous meningitis, twelve times in five cases of epidemic meningitis, five times in three cases of meningism, four times in two cases of serous meningitis, six times in four cases of chorea minor, sixteen times in five cases of epilepsy, twice in two cases of hypothyroidism, once in one case of rheumatic purpura, twice in two cases of typhoid, four times in four cases of lobar pneumonia and once in one case of uremia (a total of 278 determinations in 133 patients). On the basis of his study he states that from the manner in which the cerebrospinal fluid flows out of the lumbar puncture needle, definite conclusions with regard to the pressure of the cerebrospinal fluid cannot be drawn. Cerebrospinal fluid pressure determinations are frequently of value in differential diagnosis. Repeated cerebrospinal fluid pressure determinations are of value in following the course of the disease.

Dissemination of Tuberculosis by Tuberculin Positive Children.—From the study of sixty-seven tuberculin positive children aged from 2 months to 8 years, Poulsen concludes that tuberculin positive nurslings are almost always dangerous from the standpoint of dissemination of tuberculosis; in tuberculin positive children aged from 1 to 2 years the danger of dissemination is almost as great. Therefore when they are taken to a hospital they should be placed in a tuberculosis ward under the direction of a pediatrician.

Klinische Wochenschrift, Berlin

8: 1841-1888 (Oct. 1) 1929

Influence of Sport on Metabolism. R. Herbst.—p. 1841.
*Clinical Observations on Secondary Stage of Influenza in Children: Determination of Complete Recovery. C. Noeggerath.—p. 1845.
Transformation of Energy in Muscularly Potent and in Muscularly Weak Hearts. G. Eismayer and H. Quincke.—p. 1853.
Researches on Heat Sensibility of Surviving Tumor Cells. N. Henning and H. Habs.—p. 1854.
*Local Reactions in Diathermy of Brain. H. Hoff and P. Schilder.—p. 1856.
Content of Blood Serum in Normal Antibodies at Different Periods of Life. E. Friedberger and G. Bock.—p. 1858.
Thermolability of Lipoid Antibodies. R. Klingenstein.—p. 1860.
Pathogenesis, Clinical Aspects and Treatment of Pellagra. M. Prados y Such.—p. 1862.
Spirometer Index in Athletes. F. H. Lorentz.—p. 1864.
Use of Solution of Secondary Butylbrompropenylbarbituric Acid (Pernocton) as Base in Mixed Anesthesia. Raeschke.—p. 1866.
Influence of Hyperfunctioning of Ovaries on Propagation and on Offspring. K. Freudenberg.—p. 1867.
Idem. W. Reiprich.—p. 1867.
Peptidase Metabolism in Experimental Concussion of Brain. H. Kunz.—p. 1868.
Cholesterol Content of Blood During Childhood. G. Halfer.—p. 1868.
Long Duration of Pernicious Anemia. M. Nothmann.—p. 1869.
Diagnosis, Prognosis and Treatment of Appendicitis in Gravidas. P. Schumacher.—p. 1869.

Clinical Observations on Secondary Stage of Influenza in Children: Determination of Complete Recovery.—Noeggerath shows that the manifestations which develop after

the influenza proper and which are frequently considered as occurring in the stage of convalescence are in reality the symptoms of a disease that is sometimes more dangerous than the first stage of influenza. The author points out that during this period the patient frequently shows a special susceptibility to certain diseases. He discusses disturbances of the urogenital system, gastro-intestinal diseases, otitis media, bronchitis and enlargement and suppuration of the lymph nodes. The author further describes circulatory and vascular disturbances that often develop after influenza. He also studied the blood pictures of many children during the secondary stage of influenza. Disturbances in the water metabolism such as preedema were also noted occasionally. In other instances enlargement of the spleen and liver were noted, or disturbances in the formation and elimination of bile appeared. The author also discusses diseases of the central nervous system, especially influenzal encephalitis. In his conclusions he warns that the patients should not be permitted to enter kindergarten or school too soon after they seem to have recovered. He points out that the increase in the appetite is not necessarily a positive sign of recovery. The child is not completely recovered as long as there are still signs of influenza in the skin, the mucous membranes, the respiratory tract or the lymph nodes. Careful observation is also required if vascular weakness exists. Of great significance for the determination of the complete recovery is the return to normal of the blood.

Local Reactions in Diathermy of Brain.—Hoff and Schilder describe the influence of diathermy on the function of the brain. They applied the large electrode to the forehead and the smaller one over the cerebellum. The persons undergoing the experiment were told to stretch both arms forward. A divergence reaction became manifest. However, if only one arm was stretched forward, the divergence did not become noticeable. If the persons held the arms tense, convergence rather than divergence was the result. The authors describe other experiments in which the current was passed through the frontal region by attaching an electrode to each side. In these instances convergence was noted. When the current was passed through the middle of the brain a divergence reaction was the result. The authors describe several other experiments. They come to the conclusion that the heat causes an intensification of the functional activities of the brain. Moreover, they assert that the influence of diathermy is not merely a generalized one but that the effects are localized according to the attachment of the electrodes.

Medizinische Klinik, Berlin

25: 1493-1530 (Sept. 27) 1929

Factors Concerned in Successful Treatment of Skin Diseases. Riecke.—p. 1493.
Physiognomy in Internal and in Nervous Diseases. O. Weltmann.—p. 1495. C'td.
Variations in Reactions of Gastric Juice Following Injection of Epinephrine. P. Mahler.—p. 1498.
Experiences with Nitrogen Monoxide Narcosis. G. Rose.—p. 1500.
Value of Pyrogenic Reaction in Shock Therapy. U. Spiller.—p. 1501.
*Experiments with Various Diets: Value of Acid and of Alkali Diets in Treatment of Leukorrhea. A. W. Bauer.—p. 1506.
Experiences with Meinicke Clarification Reaction. T. Saito.—p. 1508.
Treatment of Burns. Hayward.—p. 1510. C'cn.
Diagnostic Value of Fenestrated Sphincteroscope. H. Strauss.—p. 1513.

Experiments with Various Diets: Value of Acid and of Alkali Diets in Treatment of Leukorrhea.—In the first part of the article Bauer describes diets with which he experimented on himself. After two months of an exclusive raw fruit and vegetable diet he had lost his healthy appearance and also a considerable amount of weight. During the following four months of raw diet he included in his daily ration from four to five boiled potatoes and 100 Gm. of whole grain bread. This addition prevented a further loss in weight. The author noted likewise that the raw fruit and vegetable diet decreased the physical and the mental capacity. However, the digestion was favorably influenced. The best result of the raw fruit and vegetable diet was that the rheumatic pains, to which the author had been subject since childhood, disappeared. After six months he discontinued the raw fruit and vegetable diet. He now ate steamed vegetables and some raw chopped meat, and he drank milk. Later he adopted a mixed diet rich in vitamins but deficient in proteins. He took care that the foods were not steamed too long and also that the diet contained large amounts of substances which induce alkalinity. He regained his weight, but the rheumatic disturbances likewise recurred. At first he thought that this was due to the animal protein. However, other experiments proved that the content in table salt was the significant factor. The author finally adopted a mixed diet with small quantities of meat and with limited sodium chloride content, but containing large quantities of foods that effect alkalinity. Since that time the rheumatic pains have completely disappeared. The author further reports the influence of diets on leukorrhea. Twenty women with nongonorrheal leukorrhea were put on a diet containing meat, fish, eggs, bread, lard, pastries, sweets, cocoa, tea and coffee. They also received daily 9 Gm. of acid ammonium phosphate. This treatment was continued for eight days. However, the therapeutic results were entirely negative. In thirteen patients the discharge became more profuse and the others showed no improvement. Thirty patients with a nongonorrheal leukorrhea were then put on a diet containing fruits, nuts, lettuce and other raw vegetables, also milk, steamed vegetables and potatoes. This dietary treatment brought good results. The author thinks that the effectiveness of this diet is due not only to the high content of alkali producing foods but also to its deficiency in sodium chloride.

Münchener medizinische Wochenschrift, Munich

76: 1665-1704 (Oct. 4) 1929

*Acceleration of Coagulation and of Sedimentation of Blood After Intravenous Injections. H. Köhler.—p. 1665.
Wound Infection with Diphtheroid Bacteria: Frequency of Occurrence and Treatment. W. Drügg.—p. 1666.
Application of Cowpox Vaccine Lymph in Treatment of Skin Diseases. Görl and L. Voigt.—p. 1669.
Blood Pressure of Patients with Hypertension Under Lowered Atmospheric Pressure. R. Jaenisch and K. Haug.—p. 1670.
*Influence of Spleen on Growth of Tumors. E. Brüda.—p. 1671.
*New Method of Discission of Cervix. B. Capaldi.—p. 1672.
Cauterization with Sun Rays. Schönenberger.—p. 1673.
Clinical Aspects and Treatment in Anaphylaxis to Blood of Cats. J. Manger.—p. 1674.
Diagnostic Value of Blumberg's Sign in Free Perforated Peptic Ulcers. W. Ruhmann.—p. 1674.
Prevention of Suicides and Advice for Juveniles. V. Frankl.—p. 1675.
Problems in Preclinical Instruction. Wetzel.—p. 1678.

Acceleration of Coagulation and of Sedimentation of Blood After Intravenous Injections.—Köhler asserts that the injection of fluids into the blood stream changes the composition of the blood. In order to determine whether this change influences the sedimentation speed and the coagulation, he made experiments on dogs. The animals were given intravenous injections either with a pharmaceutic preparation such as methenamine and strophanthin or with distilled water. The sedimentation speed was determined once before and several times after the injection. It was found that the injection effected an acceleration of the sedimentation speed. In animals that had received injections with protein preparations, the sedimentation speed was greater. In some animals the sedimentation again showed normal values about two hours later; in others the normal condition was restored only after two or three days. An increase in the sedimentation speed was also observed after injection of water. For the determination of the coagulation the author employed the same technic. As coagulation time he designates the interval between the extraction of the blood and the appearance of the first fibrin threads. Following the injection of protein preparations the coagulation was accelerated. However, in most instances normal conditions were again restored in from two to twenty-four hours after the injection. In animals that had received injections with distilled water or with preparations which did not contain protein, the coagulation was normal, in spite of the fact that the sedimentation speed was increased. The author comes to the conclusion that there is not a parallelism between the sedimentation speed and coagulation.

Influence of Spleen on Growth of Tumors.—Brüda first reviews former experiments which demonstrated that the spleen checks the growth of tumors. He then reports observations made in splenectomized animals which were in parabiosis with nonsplenectomized ones. Heterogeneous tumors which had developed in the splenectomized animals before the parabiosis were now checked in their growth. This proves that the action of the spleen in the other animal counteracted the growth of

the tumor. The author further made experiments with extracts from spleen. Mice were inoculated with carcinoma and with sarcoma from other mice. Half of them were then given injections with a spleen extract. In the animals that had received the injections, the tumors not only developed much more slowly but the animals lived much longer than those that had not been treated with spleen extract. The effectiveness of spleen extracts in checking the growth of tumors was also tested on cultures of tumor cells. It was observed that in those cultures to which the extract had been added, the tumor cells grew more slowly.

New Method of Discission of Cervix.—Capaldi asserts that the method which was formerly employed in discission of the cervix had the disadvantage that the lips of the wound became glued together, especially at the angle of the incision. By this, the good results of the operation were often defeated. The author therefore modifies the older method. A V shaped flap is taken from the vaginal mucous membrane. After the usual suture is completed, this flap is drawn across the angle and its point is sutured inside the cervical canal. Thus the lips of the wound are separated by the flaps of mucous membrane. The description of this technic is illustrated by a sketch which shows the completed operation on the one side, and on the other side the open incision and the free flap before suturing.

Wiener klinische Wochenschrift, Vienna

42: 1277-1308 (Oct. 3) 1929

Nature and Occurrence of Growth Rays. G. Politzer.—p. 1277.
*Treatment of Rickets with Irradiated Milk. A. Bratusch-Marrain and J. Siegl.—p. 1279.
Value of Blood Picture for Diagnosis and Prognosis. L. von Wikullil.—p. 1284.
*Differential Diagnosis of Miliary Carcinomatosis. O. Belosević and A. Krauth.—p. 1286.
*Prognosis in Tuberculosis of Joints. E. Deutsch.—p. 1287.
Appearance of Drops of Fluids on Surface of Liver Following Injections. H. Mautner.—p. 1290.
Use and Therapeutic Value of Engelhorn's Vaginal Lamp. A. Wicke.—p. 1290.
Clinical Aspects and Treatment of Umbilical Hernia and of Atypical Ventral Hernia. K. Büdinger.—p. 1291.
Surgical Treatment in Diseases of Lung, Especially in Suppurative Processes of Lung. G. Lotheissen.—p. 1295.
Technic of Examination of Feces. E. Lauda.—p. 1296.
Treatment of Acute Eczema of Face. A. Brandweiner.—p. 1297.
Causes and Medicinal Treatment of Auditory Vertigo. K. Biehl.—p. 1298.

Treatment of Rickets with Irradiated Milk.—Bratusch-Marrain and Siegl discuss the prophylaxis and treatment of rickets. They point out that, although viosterol (irradiated ergosterol) effects favorable and quick results, it may, in case of overdosage, cause serious complications. Consequently it is not suited for a general prophylaxis. The authors further report experiments with irradiated milk. Eight children with rickets, living in badly ventilated and in poorly lighted rooms, were given irradiated milk. Two others, who received an average amount of sunlight and fresh air, were given ordinary milk. A tabular report shows the progress observed in each child. It was found that the children who received the irradiated milk showed improvement from one and one-half to two weeks after the beginning of the treatment. Moreover, in spite of the fact that they were living under extremely unfavorable conditions, they recovered completely in from six to seven weeks. Of the other two children, who had been living under much more favorable conditions, the one in whom the disease had been of a mild degree recovered. However, the recovery was much slower than in the children who received irradiated milk. The other child, who after six weeks showed only slight improvement, finally was likewise subjected to the irradiated milk therapy. Now the healing progressed more rapidly. From observation of these cases the authors conclude that irradiated milk is a valuable aid in the treatment of rickets. They compare the effectiveness of irradiated milk with that of other antirachitic agents and find that it gives about the same results as irradiation of the body with the quartz lamp, that it is more effective than cod liver oil and that although it does not act quite as rapidly as viosterol, it is also less dangerous. Irradiated milk has not only therapeutic but also prophylactic value. In conclusion the authors direct attention to the fact that with the aid of the various antirachitic agents rickets may be prevented; however, one should not neglect to emphasize the significance of a healthy mode of life which gives the body a sufficient power of resistance against other, more dangerous diseases, especially tuberculosis.

Differential Diagnosis of Miliary Carcinomatosis.—Belosević and Krauth assert that the symptomatology of miliary carcinomatosis is manifold and the differential diagnosis is generally difficult. They describe two cases. In the first instance the differential diagnosis was based on the following considerations: The acute febrile exacerbation following a chronic debility, in a patient 58 years of age, the absence of the roseola typhosa and the existence of a chronic swelling of the liver and spleen spoke against typhoid. The age of the patient, the specific nontuberculous cachexia and the circumstance that the pallor, the cyanosis and the dyspnea did not reach a high degree indicated that the patient did not have miliary tuberculosis. A suppurative meningitis was ruled out because a primary focus could not be detected. The fact that several organs seemed to be affected led to the assumption of an existing metastasizing carcinoma. The patient died and the postmortem examination proved that the diagnosis "miliary carcinomatosis" had been correct. The second case reported concerns a man, aged 66. The patient's general condition, the results of urinalysis, the blood picture and the fever curve indicated typhoid. However, the bacteriologic and the serologic examinations gave entirely negative results. Roseola typhosa was not observed. The absence of cyanosis, the character of the blood picture and the age of the patient spoke against a miliary tuberculosis. The hemoculture remained sterile. This and the nature of the blood picture proved that the patient was not suffering from sepsis. On the patient's lower eyelids and behind the left auricle flat wartlike growths were noted. Biopsy revealed that they were planocellular carcinomas. The diagnosis, miliary carcinomatosis, was based on the assumption that a primary carcinoma had metastasized. The postmortem examination confirmed this diagnosis.

Prognosis in Tuberculosis of Joints.—Deutsch points out that in the prognosis of a case of tuberculosis of the joints it should be considered that the articular process is generally secondary. In a case of tuberculosis of the bronchial lymph nodes, the articular process is usually less severe than in pulmonary tuberculosis. If the kidney or other viscera are tuberculous, the prognosis of the tuberculosis of the bones or joints is unfavorable. In children the articular tuberculosis is sometimes primary. That is why the prognosis is usually favorable. Another reason for the better prognosis in children is the fact that the process is circumscribed. In older persons the tuberculous process has a greater tendency to spread. The nature of the tuberculous process is likewise significant. The recovery requires less time in tuberculosis of the bones than in tuberculosis of the joints. Suppurative processes have an unfavorable prognosis. If fistulas exist the patient is in danger of a mixed infection. Even sepsis may develop in these cases. Tuberculous processes of the joints of the upper extremities require a shorter time for recovery than those of the lower extremities. This is probably due to the fact that the greater burdening of the lower extremities favors a spreading of the process. A tuberculous process of the shoulder joint, on the contrary, heals occasionally without special therapeutic care. As the causes for the fatal outcome in tuberculosis of the bones or of the joints, the author names the following: a progressive pulmonary process, tuberculous infection of other organs, development of a miliary tuberculosis, tuberculous meningitis, amyloid degeneration, generalized sepsis and nontuberculous complications of other internal organs, especially of the heart, kidney or pancreas. The author also discusses the advantages and the disadvantages of the various therapeutic methods. Concerning the duration of articular tuberculosis he states that it varies depending on the nature and on the location of the process and also on the complications. Spondylitis and tuberculous coxitis usually require from three to four years for complete recovery. Tuberculous inflammation of the knee joint lasts from one to two years. Tuberculosis of smaller joints usually requires at least one year for its complete cure, even if no other complications exist. It is also pointed out that relapses develop in some instances. In conclusion the author stresses the great significance of early treatment. He also advises that patients should be told of the long duration of

the healing process. The patient should be encouraged to remain under the care of the same physician because a change of physicians may also mean a change in the therapeutic method and this will often delay the recovery rather than hasten it.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

96: 1-238 (Sept. 5) 1929

*Treatment of Tuberculous Gravidas. F. Klemperer.—p. 1.
*Pregnancy in Tuberculosis. F. Schultze-Rhonhof.—p. 17.
Sanatorium Treatment of Tuberculous Gravidas. A. Scherer.—p. 26.
*Treatment of Active Progressive Pulmonary Tuberculosis in Gravidas. R. Hornung.—p. 35.
*"Menotoxic Hemorrhage." A. Hermstein.—p. 40.
Cyclic Changes of Mamma and of Human Vaginal Epithelium. H. Kückens.—p. 55.
*True Reaction of Blood During Pregnancy and Labor. H. Siedentopf and W. Eissner.—p. 76.
Blood Group Determinations in Mothers and Their New-Born. G. Deilmann.—p. 102.
*Lymphogranulomatosis of Internal Female Genitalia and Bladder. A. Szenes.—p. 121.
Recognition of Pregnancy in Eighth Lunar Month. K. M. Figurnow.—p. 137.
Intra-Uterine Charcoal Treatment in Gynecology and Obstetrics. H. Nahmmacher.—p. 155.

Treatment of Tuberculous Gravidas.—According to Klemperer it is impossible to state in figures the effect of pregnancy on the course of tuberculosis in women. Although the earliest possible interruption of pregnancy does not cure the tuberculosis, it eliminates the harmful effect of the pregnancy and facilitates the treatment and cure of the tuberculosis. Immediate sanatorium treatment continued beyond labor greatly increases the chances for recovery in tuberculous gravidas and in some cases can render unnecessary the otherwise indicated interruption of pregnancy. Whether or not interruption of pregnancy is indicated in tuberculous gravidas depends on the medical and social conditions in the individual case.

Pregnancy and Tuberculosis.—Schultze-Rhonhof gives the following reasons why tuberculous women should not become pregnant: The possibility of an acceleration of the pulmonary process during pregnancy cannot be excluded with absolute certainty. The increase in the size of the family and the rearing of an additional child increase the physical demands made on the mother and frequently increase a financial embarrassment with its attendant limitations; all these factors influence unfavorably the subsequent course of the tuberculosis. If the mother refuses to part with the infant the latter is endangered by an early postnatal infection. If the mother does permit the infant to be taken away she suffers mentally from the loss of her child, and this mental suffering has a marked unfavorable effect on the course of the tuberculosis.

Treatment of Active Progressive Pulmonary Tuberculosis in Gravidas.—As the method of choice in the treatment of active progressive pulmonary tuberculosis in gravidas, Hornung recommends total vaginal extirpation of the gravid uterus under local anesthesia, without removal of the ovaries.

Menotoxic Hemorrhage.—Hermstein believes that the terms "vicarious menstruation" and "vicarious hemorrhage" are inexact and should be replaced by the term "menotoxic hemorrhage."

True Reaction of Blood During Pregnancy and Labor.—In determinations of the hydrogen ion concentration of the blood of nonpregnant and pregnant women, Siedentopf and Eissner found that during pregnancy there is not a displacement of the true reaction toward the acid side; on the contrary, there is a slight increase in the alkalinity of the blood. In premature interruption of pregnancy the reaction of the blood is the same as it is during pregnancy. During labor the maternal blood shows an actual reaction about the same as the reaction of the blood of nonpregnant women; the value is doubtless the result of a certain acidification of the more alkaline blood of the pregnant woman. The blood of the new-born is almost always somewhat more acid than the maternal blood.

Lymphogranulomatosis of Internal Female Genitalia and Bladder.—Szenes reports a case of clinically and pathologically atypical lymphogranulomatosis in a woman, aged 35, in whom the involvement of the internal genitalia and bladder was unusually marked and was refractory to treatment.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

73: 4757-4868 (Oct. 12) 1929

*A Parathyroid Tumor and Skeletal Abnormalities. I. Snapper.—p. 4758.
*Postvaccinal Encephalitis. J. Hekman.—p. 4774.
*A Peculiar Complication in Bronchopneumonia. J. C. Schippers.—p. 4783.
Weil's Disease Without Icterus. G. C. Van den Heuvel.—p. 4791.
Gas Gangrene from Endogenous Infection. C. Knapper.—p. 4792.

Parathyroid Tumor and Skeletal Abnormalities.—Snapper reports that in a man, aged 56, who was affected with marked decalcification of the bones, associated with severe pains, particularly in the legs and knees, it was found that the disease had begun as generalized osteitis fibrosa cystica. There was a pseudo-osteomalacic end-stage resembling that of Recklinghausen's disease. The calcium content of the blood serum was much increased, which was interpreted as an expression of an overactive parathyroid. There was a small tumor in the thyroid. A tumor in one of the parathyroids was suspected and was found at operation. After extirpation of this small tumor, a decided improvement in the patient's condition, amounting practically to a clinical recovery, was noted.

Ten Cases of Postvaccinal Encephalitis.—Hekman states that, following the increase in the number of vaccinations in Rotterdam that resulted from the occurrence of smallpox in the city, there were several cases of encephalitis. Between August 17 and September 12, ten patients were admitted to the Bergweg Hospital with postvaccinal encephalitis. In eight of these patients, the disease had developed after primary vaccination, and in two, after revaccination. The clinical picture in all these patients was uniform except in the two cases that developed after revaccination. As is now quite generally known, this form of encephalitis develops (if at all) usually in from nine to twelve days after vaccination. The disease begins then with a sharp rise in temperature, followed by a more or less intense form of unconsciousness, often associated with more or less severe vomiting. In all cases the author found the typical symptoms of encephalitis. The symptoms of meningitis receded in all cases into the background. There was, however, some stiffness of the neck, and Kernig's sign was often positive. There was in many cases an increased muscular tonus, though this was absent when the state of unconsciousness was very profound. The Babinski reflex was positive in all cases, though not always on both sides. Marked dermographism was always present.

Peculiar Complication in Bronchopneumonia.—Schippers reports a very serious, long drawn-out case of bronchopneumonia in a girl, aged 2, which with many "ups and downs" extended over a period of five months. About three and a half months after the onset, a peculiar complication developed: symmetrical periosteitis affecting the second, third and fourth metacarpals, with painful swelling of the adjacent soft parts. In addition, there developed persistent pains in the neck muscles, although no further changes were discovered at that site. After the pneumonia cleared up, the changes in the soft parts rapidly disappeared, though the periosteitis continued for a while longer. There was apparently a connection between the pneumonia and the lesions on the hands of the patient.

Finska Läkaresällskapets Handlingar, Helsingfors

71: 661-764 (Sept.) 1929

*Multiple Infiltration with Plasma Cells in Small Intestine: Peculiar Mycotic (?) Disorder. U. Quensel.—p. 661.
*Regeneration. A. Fischer.—p. 672.
*Cultivation of Human Tissue. H. Castrén.—p. 709.
*Cancer of Vagina in Second Year of Life. E. Lövegren.—p. 717.
*Operative Treatment of Diffuse Peritonitis After Abortion. J. J. Chydenius.—p. 724.

Multiple Infiltration with Plasma Cells in Small Intestine.—In Quensel's patient, a man, aged 44, with a history of long continued gastric disturbance and treatment for duodenal ulcer, there occurred suddenly great exhaustion with bloody feces and death in a week. Necropsy revealed numerous firm, round and oval foci of various sizes. Most of the mucous membrane was intact. Microscopic examination showed a diffuse infiltration of the intestinal wall with round cells, chiefly plasma cells. In and among these cells were peculiar, sharply defined foreign corpuscles of irregular form and size. It is suggested that the process may perhaps be regarded as a new mycotic disorder of the intestine.

Regeneration of Tissue.—The results of Fischer's investigations on proliferation of cells after mutilation indicate that the cause is chiefly to be sought in two possibilities: 1. The destruction of cells releases substances which either directly serve as nutrition for the proliferating cells or activate the ability of the cells to break down the nutritive substances present. 2. The removal of cells affects the biodynamic balance (between the cells and the surrounding medium), which is restored by cell division.

Cultivation of Human Tissue.—Castrén finds marked resemblances between human fibroblast cultures and corresponding cultures from chicken tissue. In cultures from a cultivated spindle cell sarcoma there is marked likeness to fibroblast cultures; he has not yet been able to determine whether they are cultures of tumor cells or fibroblast cultures originating from the stroma cells of the sarcoma.

Cancer of Vagina in Second Year of Life.—A case of primary vaginal cancer in a 2 year old girl is reported by Lövegren.

Operative Treatment of Diffuse Peritonitis After Abortion.—Of the twenty-seven patients not operated on in Chydenius' total of fifty-six cases of diffuse peritonitis after abortion, from 1919 to 1929, all but one died. Of the twenty-nine operated on, ten recovered. He gives a detailed report of the twenty-one operated on since 1925, showing the development from simple drainage to the more radical forms of treatment. Nine of the ten cases with recovery were in this group; three were instances of streptococcic peritonitis. Operation was done within the first twelve hours after the appearance of the general or almost general peritonitis. High peritonization is believed to have contributed to the improvement in results following more radical treatment. The author emphasizes the fact that observation and examination of the patient from hour to hour, together with greater experience, are needed for the determination of the proper time for surgical intervention.

Hygiea, Stockholm

91: 593-624 (Sept. 15) 1929

*Intracarpal Dislocation and Fracture. C. Adlercreutz.—p. 593.

Dislocation and Fracture of Carpus.—In Adlercreutz's first case there was volar dislocation of the semilunar bone of the right wrist, and in the left wrist displacement backward, with fracture of the styloid process of the radius and the cuneiform bone. Bloodless reposition was followed by recovery. The various dislocations of the wrist are reviewed, also the theories regarding the origin of dislocation of the semilunar bone and its mechanism, together with the symptoms, diagnosis and treatment. Two additional cases are reported, one of dislocation with fracture, with recovery after bloodless reposition, and one of fracture of the semilunar bone with osteomalacia (Kienboch), with recovery after extirpation of the bone.

Norsk Magasin for Lægevidenskapen, Oslo

90: 1021-1132 (Oct.) 1929

Vis Medicatrix Naturae. S. Laache.—p. 1021.
Susceptibility to Diphtheria in Rural Districts. K. A. A. Schrumpf.—p. 1037.
*Typhoid-Like Fever After Appendectomy Caused by B. Fecalis-Alcaligenes. N. Danbolt.—p. 1052.
*Fatal Pneumonia Due to B. Pyocyaneus Following Pulmonary Embolism After Appendicitis. N. Danbolt.—p. 1057.
Treatment of Umbilicus in the New-Born: New Umbilical Clamp. A. Sunde.—p. 1063.
Puerperal Inversion of Uterus: Five Cases. A. Sunde.—p. 1069.
*Sacralization of Fifth Lumbar Vertebra. R. Ingebrigtsen.—p. 1081.
*Scheuermann's and Kienboch's Disease. W. F. Baastad.—p. 1106.

Typhoid-Like Fever After Appendectomy Due to B. Fecalis-Alcaligenes.—In Danbolt's case after operation without complications there was persistent fever suggesting typhoid. The agglutination test was negative with typhoid bacilli and paratyphoid bacilli A and B, but the blood culture revealed a microbe with the characteristics of *B. fecalis-alcaligenes*, which was agglutinated in the patient's serum in a dilution of 1:80, this titer falling during the course of the disease to zero when convalescence set in. The infection is attributed to *B. fecalis-alcaligenes* from the intestinal contents.

Fatal Pneumonia Due to B. Pyocyaneus Following Pulmonary Embolism After Appendicitis.—In the case described by Danbolt the embolism occurred ten days after an operation for acute appendicitis with peritonitis and was followed by pneumonia, fatal in eight days. *B. pyocyaneus* was abundant in the sputum, in which a few pneumococci of type II were seen, and was present in the intestine. Blood cultures immediately after death disclosed *B. pyocyaneus* in large numbers, but no pneumococci. Serologic examination of the blood gave an agglutination titer of 1:640 and a complement fixation of 1:800 of the pyocyaneus strain. The strain of *B. pyocyaneus* was intensely virulent in white mice, the pneumococci but slightly so. Danbolt thinks the septic embolus originated in a blood vessel in the abdominal cavity and regards it as the main, if not the only, infective agent.

Sacralization of Fifth Lumbar Vertebra.—Ingebrigtsen concludes that unilateral sacralization causing deviation of the axis of the spinal column gives rise to a symptom complex of pain and contractures with greater or less invalidity and that these grave cases constitute a clinical entity, namely, the painful sacralization, which is amenable to surgical treatment (resection of the transverse process). Three cases are reported, in two of which operation was performed with complete and permanent recovery.

Scheuermann's and Kienboch's Disease.—Baastad reports three cases belonging to the group of disorders which he would designate as necroses of the epiphyses. In the first two cases, in patients aged 17 and 18, respectively, the spinal column was affected (Scheuermann's disease) and in the third, the semilunar bone (Kienboch's disease). Immobilization gave good results.

Ugeskrift for Læger, Copenhagen

91: 817-836 (Sept. 26) 1929

*Specific Vaccine Treatment of Chancroid and Its Bubo. A. F. Lassen.—p. 817.
Influence of Environment on Manifestation and Course of Hysterical Conditions. O. Christensen.—p. 823.
Sedimentation Reaction According to Westergren. M. C. Lottrup.—p. 824.
Multilocular Pseudomucinous Cystadenoma. S. K. Svendsen.—p. 825.

Specific Vaccine Treatment of Chancroid and Its Bubo.—Lassen concludes that the use of antichancroid vaccine in the skin for diagnostic reaction affords a certain means of diagnosis in chancroid at least 8 or 10 days old, and in bubo due to chancroid. The intradermal reaction appears to be lifelong and when positive establishes chancroid or bubo in the patient's history. The reaction is a useful guide in specific vaccine therapy, as to both the intensity and the duration of the treatment. Specific vaccine therapy is the preferred method in chancroid complicated with bubo, regardless of the age, size or condition of the bubo. The treatment is not constant in its effect in uncomplicated soft chancre, which should be given local treatment, possibly combined with specific vaccine therapy.

91: 857-876 (Oct. 10) 1929

*Acute Peritonitis. P. N. Hansen.—p. 857.
*Origin and Development of Exophthalmic Goiter. T. B. Wernøe.—p. 861.

Acute Peritonitis.—Hansen discusses peritonitis due to perforation, particularly perforation of gastric or duodenal ulcers, or to appendicitis.

Origin and Development of Exophthalmic Goiter.—Wernøe concludes that in all probability exophthalmic goiter develops as follows: Pathologic changes in the sympathetic nervous system or some other cause leads to hyperfunction of the thyroid. The hormone-producing cells concerned influence the sympathetic neurons innervating them. The affected sympathetic end-organs cause a peripheral sympathetic reflex—a postganglionic axon reflex—which produces changes of the orbital tissue with resulting exophthalmos. Hypersecretion of the thyroid also brings about an increase in the quantity of hormones in the blood, with consequent hormonic action on the central sympathetic neurons, causing increased exophthalmos and increased hyperfunction of the thyroid. Increased activity of the thyroid is followed by increased changes in the sympathetic with all its results, including increased function of the thyroid, and the reciprocal action is continued, fully developed exophthalmic goiter being the end-result of the vicious circle.